

Study on Awareness of Hydroxychloroquine as Prophylactic Measure for COVID-19 among Health Care Workers of Tertiary Hospital in Central India

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ABSTRACT

Introduction: The outbreak of novel coronavirus disease (COVID-19) in December 2019 in China, became an international emergency. The virus causes a cluster of severe respiratory illness. Hydroxychloroquine (HCQ) use in presumptive prophylaxis is derived from evidence of benefit as treatment, supported by studies conducted in China and France. At NIV Pune, the in-vitro testing of HCQ for antiviral efficacy showed reduction in viral RNA copy of SARS-CoV2. Indian Council of Medical Research recommended the prophylactic use of HCQ in all asymptomatic healthcare workers involved in containment and treatment of COVID-19 and those working in non-COVID hospitals/non-COVID areas of COVID hospitals. Current research objective was to study awareness regarding hydroxychloroquine as prophylactic measure among health care workers.

Material and methods: Survey using self-administered questionnaire was conducted in month of April in Tertiary hospital. Consenting adults aged above 18 years, Asymptomatic health care workers involved in the suspected or confirmed case of COVID-19 were included in the study. All participants were mailed the questionnaire designed using google forms to be filled over one-week time. The ones who fulfilled the inclusion and exclusion criteria were considered for the study. They were informed of the aim, objective, procedure and a total of 255 participants were recruited into the study. No intervention was done during the study.

Results: 255 correctly filled questionnaires were included in the data analysis. Rate of awareness regarding hydroxychloroquine was 98.8% (n=252), out of which 42.4% (n=108) took prophylactic treatment while 57.6% (n=147) did not. Out of those who took treatment 97.2% (n=105) were aware about the dosage regimen, 89.8% (n=97) of the contraindications and 85.2% (n=92) about its adverse effects.

Conclusion: Awareness regarding hydroxychloroquine as prophylactic measure among health care workers is 98.8% (n=252).

Keywords: Awareness, COVID-19, Hydroxychloroquine, Prophylaxis

INTRODUCTION

Corona viruses are a large family of viruses which may cause illness in animals or humans. The most recently discovered coronavirus causes coronavirus disease COVID-19. COVID-19 is an infectious disease that cause symptoms like fever, tiredness, and dry cough. Around 1 out of every 6 people who gets COVID-19 becomes seriously ill and

develops difficulty breathing. Older people, and those with underlying medical problems like high blood pressure, heart problems or diabetes, are more likely to develop serious illness.^{1,4} Chloroquine was used in multi-centric clinical trials involving 100 COVID-19 patients in China to test in vivo efficacy. Two studies conducted in France suggested that HCQ reduced the viral load in COVID-19 patients. At NIV, Pune, the report of the in-vitro testing of HCQ for antiviral efficacy showed reduction of infectivity /log reduction in viral RNA copy of SARS-CoV2. An observational prospective study of 334 healthcare workers at AIIMS, out of which 248 took HCQ prophylaxis (median 6 weeks of follow up) in New Delhi also showed that those taking HCQ prophylaxis had lower incidence of SARS-CoV-2 infection than those not taking it. These studies guided ICMR to recommend HCQ as chemoprophylaxis for asymptomatic health care workers.^{3,5} It is presumptive prophylaxis, public health measures such as frequent washing of hands, respiratory etiquettes, keeping a distance of minimum 1 meter and use of Personal protective gear should be followed and prophylaxis should not instill a sense of false security.³

Current research objective was to study awareness regarding hydroxychloroquine as prophylactic measure among health care workers

MATERIAL AND METHODS

Current survey was conducted at L.N. Medical College and J.K Hospital Bhopal, tertiary care center. In our study, health care workers of different clinical and Para-clinical branches working in hospital were considered who fulfilled the inclusion and exclusion criteria. A self-reporting Questionnaire (survey) was designed using google form and was distributed among all using Email and WhatsApp and they were explained the Aims, Objectives, Procedure of the research study. All the health care workers were contacted personally, telephonically and through mails to fill the google

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form. (Survey was open for responses for one-week time). Questionnaire included questions related to: 1) Awareness about hydroxychloroquine. 2) General Proforma 3) Intake of hydroxychloroquine as prophylaxis. 4) Post intake satisfaction levels. 5) Reasons for not taking the prophylactic treatment. 6) Awareness about social distancing and other precautionary measures undertaken. Responses received were analyzed using Excel Spreadsheets, Graphs and Charts.

Inclusion criteria

1. Age – above 18 years
2. All asymptomatic healthcare workers involved in containment and treatment of COVID-19 and asymptomatic healthcare workers working in non-COVID hospitals/non-COVID areas of COVID hospitals/blocks.
3. Consent to participate in the study

Exclusion Criteria

1. Age- less than 18 years.
2. Consent not given
3. Suspected or confirmed COVID-19 defined as a) temperature $>38^{\circ}\text{C}$ b) cough c) shortness of breath d) sore throat e) positive confirmatory test for COVID-19
4. Suspected or confirmed convalescent COVID-19 defined as any of above symptoms within prior 4 weeks
5. Prior diagnosis of retinopathy
6. Known hypersensitivity to hydroxychloroquine, 4-aminoquinilone compounds

Informed consent was taken from all participants included in the study. Ethical clearance was taken before the start of study.

RESULTS

A total of 255 health care professionals participated in the study. Out of 255 participants, 124 were male and 131 were female [Table 1]. The mean age was 28.91 years with age range from 21–69 years.

Amongst these, 98.8 % (n=252) were aware about

hydroxychloroquine being proposed as prophylactic treatment for COVID-19. Out of 108 taking prophylaxis 97.2% (n=105) were aware about the dosage regimen of hydroxychloroquine, 89.8% (n=97) were aware about its contraindications while 85.2% (n=92) about its adverse effects. [Figure 1].

The source of information being majorly 84.3% (n=91) from doctors followed by 30.6% (n=33) government website. A total of 42.4 % (n=108) participants took the prophylactic treatment while 57.6% (n=147) did not. The recommended dose (400mg BD on Day 1 followed by 400 mg OD once a week for next 7 weeks) in the guidelines was taken by 96.3% (n=104).

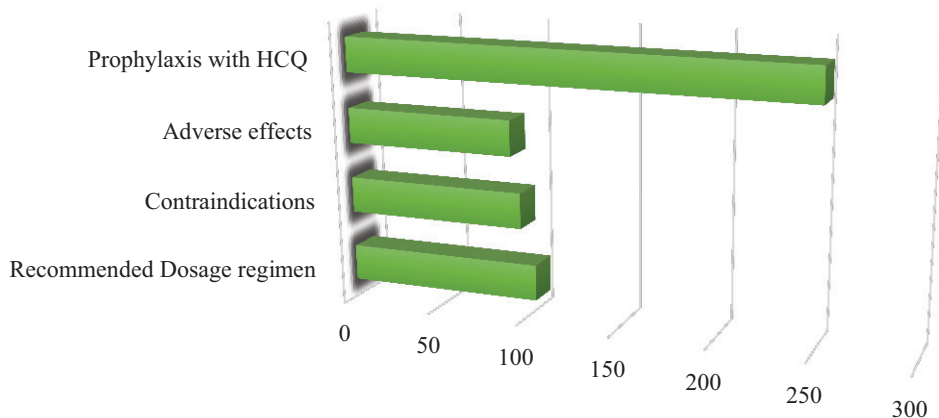
Amongst all health care workers were 188 Doctors, 61 Nursing, 3 Physiotherapist, 2 Dietician and 1 Counsellor. [Figure 2] Amongst Doctors specialty wise there were 19 from Medicine, 21 from Surgery, 10 from Orthopedics, 17 from Anesthesia, 7 from Pediatrics, 11 from Obstetrics and Gynecology, 3 from ENT, 3 from Respiratory Medicine, 8 from Radiology, 3 from Ophthalmology, 10 from Pathology, 2 from Dermatology, 1 from Emergency Medicine, 1 from Microbiologist, 1 from Urologist, 1 from Cardiologist, 1 from Spine Surgeon. [Figure 3]

Almost 65.1% (n=166) were involved in direct/indirect contact with suspected patient/confirmed case and 99.6% (n=254) knew about social distancing.

We also inquired about the safety measures taken by health care workers against COVID-19, 97.6 % (n=249) followed hand washing, 84.7% (n=216) wore surgical mask and 84.3 % (n=215) used hand sanitizer. Use of PPE and N95 was 20% (n=51) and 42.4% (n=108) respectively. Other measures included using face shield, cap, gloves, daily car sanitization. The factors which were important to them before taking a proposed prophylactic treatment were 88.2% (n=225) safety, 65.1 % (n=166) efficacy, 65.5% (n=167) minimal side effects, 61.2% (n=156) clinically tested, 43.9 % (n=112) affordable, 56.1% (n=143) easy availability. Out of 255, all factors were important to around 81 people. Few others

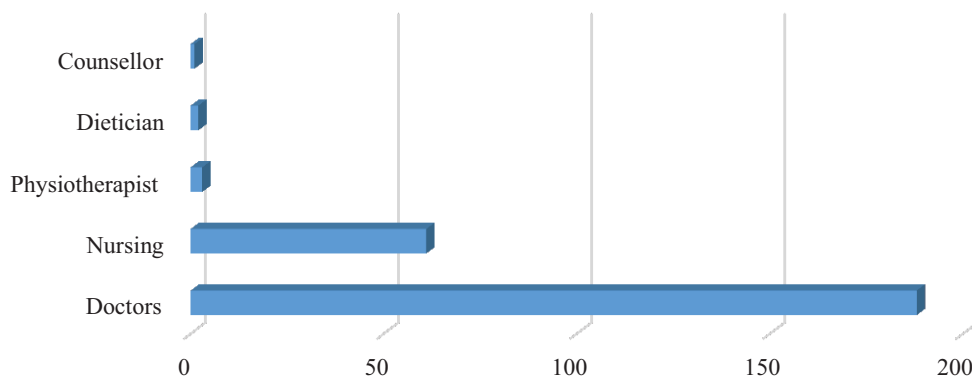
Sr. no	Variable	Category	Values
1.	Sex	Male	124 (48.6%)
		Female	131(51.3%)
2.	Marital status	Married	77
		Unmarried	174
		Divorced	3
		Widow/Widower	1
3.	Past medical history	Diabetes	6 (2.3%)
		Hypertension	8 (3.1%)
		Tuberculosis	3 (1.2%)
		Thyroid disorder	12(4.7%)
		Asthma	12 (4.7%)
		Epilepsy	2(0.8%)
		Cardiovascular disease	2 (0.8%)
		Known hypersensitivity to the drug prescribed	0
		Retinopathy	0
		Others (PCOS, Migraine, RA, Hemorrhoids)	16 (6.3%)

Table-1: The demographic profile of participants-



	Recommended Dosage regimen	Contraindications	Adverse effects	Prophylaxis with HCQ
■ Number of participants	105	97	92	252

Figure-1: Awareness regarding hydroxychloroquine as prophylactic measure, the recommended dosage regimen, contraindication and adverse effects of the drug.



	Doctors	Nursing	Physiotherapist	Dietician	Counsellor
■ Number of participants	188	61	3	2	1

Figure-2: Health care workers included in the study

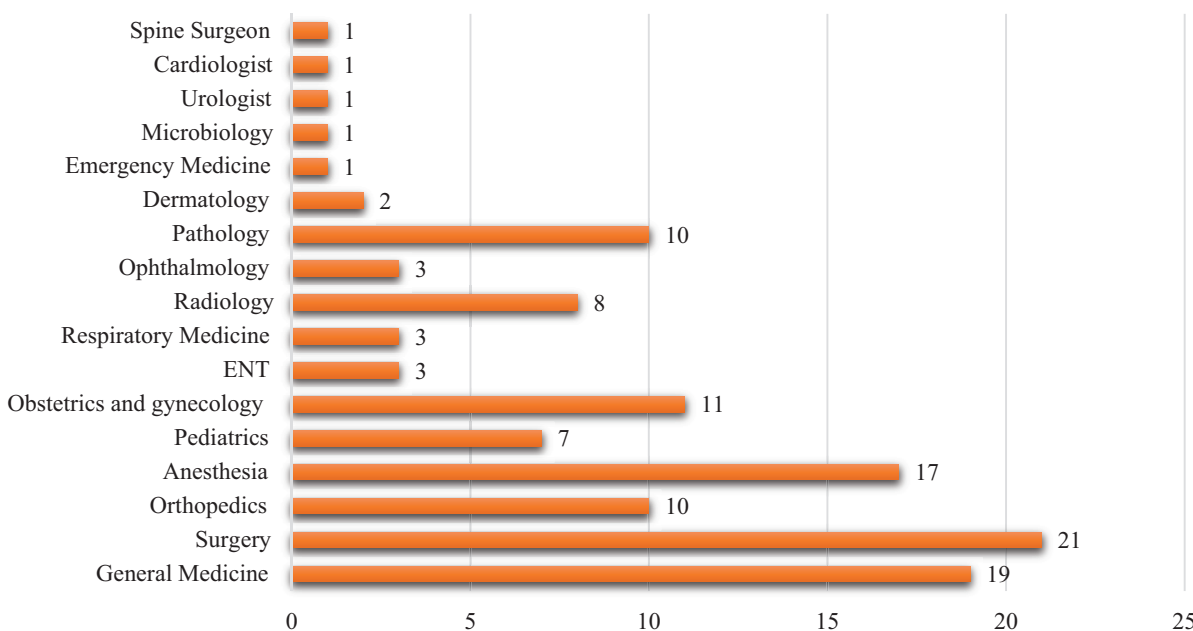


Figure-3: Specialty wise distribution of doctors.

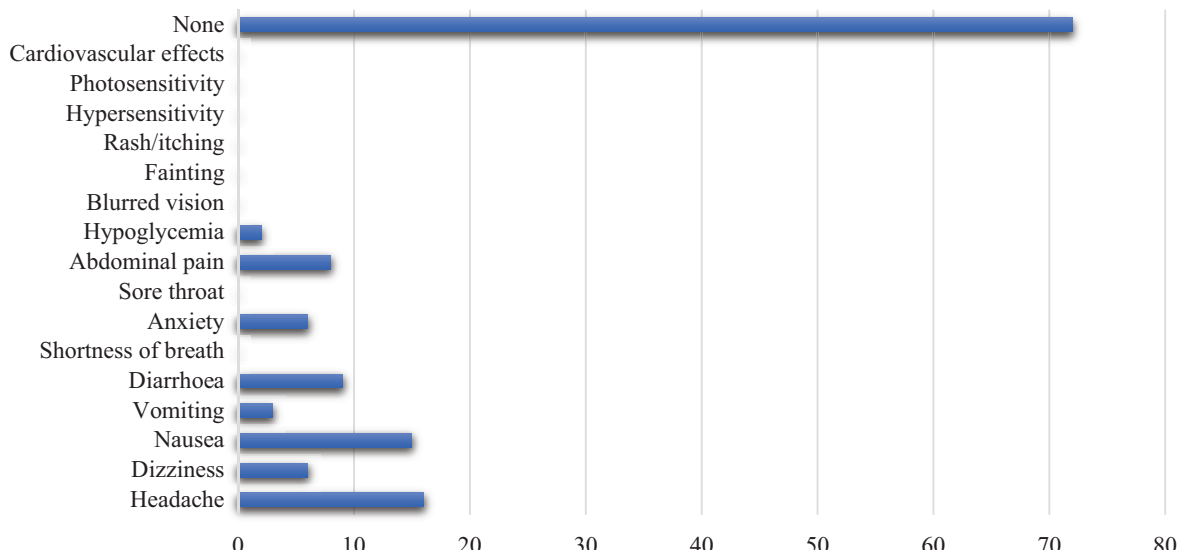


Figure-4: The various adverse effects experienced by participants

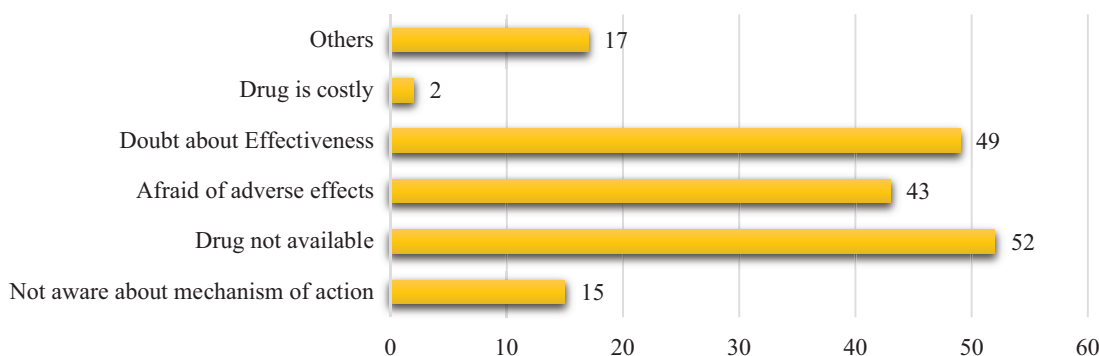


Figure-5: The various reasons for not taking prophylaxis

would check mode of action and uniform results of the drug before taking the treatment.

Amongst the 42.4% (n=108) that took prophylactic treatment 93.5 % (n=101) took hydroxychloroquine while 6.5 % (n=7) took hydroxychloroquine and azithromycin combination. Only 13 % (n=14) got a baseline ECG before taking the drug.

Around 66.7% (n=72) patients experienced no adverse effects and the ones that experienced, majority being 14.8% (n=16) headache and 13.9 % (n=15) nausea, 8.3% (n=9) had diarrhea, 7.4% (n=8) abdominal pain followed by 5.6% (n=6) experiencing anxiety and dizziness. Other causes included burning epigastrium. [Figure 4]

The drug was easily available for around 39.8% (n=43) in the hospital. The satisfaction levels post intake of drug in majority people (n=59) was 60%.

Among the 57.6% (n=147) not taking prophylactic treatment the major reasons were, 34.7% (n=52) unavailability of the drug, 33.3% (n=49) had doubt about its effectiveness while 29.3% (n=43) were afraid of its adverse effect. 10.2% (n=15) were not aware about its mechanism of action while 1.4% (n=2) found the drug costly. Amongst others, 6.8 % (n=10) were currently not working under COVID-19 duties, 1 had history of CAD while a minor percent 3.4 % (n=5) did not believe in the drug’s prophylactic benefits.

Many chose multiple reasons from the above stated. [Figure 5]

DISCUSSION

The drug Hydroxychloroquine was recommended as prophylactic measure for SARS- COV by The Ministry of Health and Family Welfare on 23rd March 2020.²

Later, The National Task force (NTF) for COVID-19 constituted by Indian Council of Medical Research also reviewed the use of HCQ for prophylaxis of SARS-CoV-2 infection for high risk population based on the emerging evidence on its safety and efficacy.

The Joint Monitoring Group and NTF have now recommended the prophylactic use of HCQ in the following categories:

1. All asymptomatic healthcare workers involved in containment and treatment of COVID-19 and asymptomatic healthcare workers working in non-COVID hospitals/non-COVID areas of COVID hospitals/blocks.
2. Asymptomatic frontline workers, such as surveillance workers deployed in containment zones and paramilitary/police personnel involved in COVID-19 related activities.
3. Asymptomatic household contacts of laboratory

confirmed cases.³

Hydroxychloroquine, an inexpensive anti-malarial medication with immunomodulatory effects, is a promising therapy for COVID-19. It has been found to be effective against the novel coronavirus in some recent experiments. Previously it was safely used to prevent malaria or to treat autoimmune diseases. Since this is a new prophylactic treatment, it's awareness, acceptance and the satisfaction levels should be known.

Our study conducted is an observational study aimed to evaluate the awareness regarding this guideline, to find out how many people are taking the recommended treatment and if not the reason for such.

We found out that 42.4% (n=108) took the prophylactic treatment while 57.6%(n=147) did not. 98.8% (n=252) were aware regarding the use of hydroxychloroquine as prophylaxis for COVID-19. 66.7% (n=72) did not experience any adverse effects post intake of drug. Out of 108 participants who took the prophylaxis, 59 people were 60 % satisfied after taking the prophylaxis. Only 13%(n=14) had an ECG done prior using the drug.

147 health care workers did not take prophylaxis and the reasons primary being 34.7% (n=52) unavailability of the drug 33.3%, (n=49) had doubt about its effectiveness while 29.3% (n=43) were afraid of its adverse effect. 10.2% (n=15) were not aware about its mechanism of action while 1.4%(n=2) found the drug costly.

The major factors responsible before taking a proposed treatment were 88.2% (n=225) safety, 65.1 % (n=166) efficacy, 65.5%(n=167) minimal side effects, 61.2%(n=156) clinically tested, 43.9 %(n=112) affordable and 56.1% (n=143) easy availability.

CONCLUSION

The awareness regarding the use of hydroxychloroquine as prophylaxis for COVID-19 was 98.8%(n=252). The prophylactic treatment was taken by 108 people. Amongst them, 97.2% (n=105) were aware about the dosage regimen of hydroxychloroquine, 89.8% (n=97) were aware about its contraindications while 85.2% (n=92) about its adverse effects.

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