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Chemoprophylaxis Status among Medical Practitioners Involved In the Care of COVID19 Suspects/Confirmed Cases in Karnataka

Apoorva E Patel[1], Srividya J[2], Sunil Kumar DR[3]

[1]Assistant Professor, Dept. of Community Medicine, AIMS&RC, Devanahalli, Bengaluru
[2]Assistant Professor, Dept. of Community Medicine, AIMS&RC, Devanahalli, Bengaluru
[3]Professor and Head, Dept. of Community Medicine, AIMS&RC, Devanahalli, Bengaluru

ABSTRACT

Background: In the ongoing pandemic of Covid-19 health care workers are at high risk of getting infected. The National task force for COVID-19 constituted by ICMR recommended the use of hydroxyl chloroquine as prophylaxis for healthcare workers. This study conducted **t**o determine the status of chemoprophylaxis and protectiveness of chemoprophylaxis among medical practitioners in Karnataka, involved in the care of COVID19 suspects/confirmed cases.

Methods: A cross-sectional study was carried out using a pretested online questionnaire among 236 Medical Practitioners (both government and private) involved in COVID- 19 care, across Karnataka, between June August 2020.

Results: Out of 236 Medical Practitioners, 118 responded and 100 Medical Practitioners responded completely, majority were males (69%), aged 31-50 years (58%), working at private health care setups (74%). Out of this, 46% took the chemoprophylaxis, 26% experienced side effects. 27 (59%)had Completed chemoprophylaxis. After completion Of Chemoprophylaxis, 16(89%) were tested negative, indicating good protectiveness and 2 (11%) tested positive. The difference in completion of chemoprophylaxis among government (15[79%)] and private doctors (12[44%)] was found to be statistically significant. Statistically significant association was also seen with age, gender, experience in years.

Conclusion: Chemoprophylaxis has good protectiveness. Majority did not take chemoprophylaxis for fear of adverse events.

Key words: COVID-19, Chemoprophylaxis, Medical practitioners, adverse events

INTRODUCTION

The ongoing pandemic of Covid-19 has caused around 1.79 million deaths worldwide till date.[1] Health care workers who are the frontline responders are at high risk of getting infected. In view of this, the National task force for COVID-19 constituted by ICMR recommended the use of hydroxychloroquine as prophylaxis for healthcare workers and high-risk contacts of patients.

Hydroxychloroquine (HQN), an antimalarial drug that has been mainly used in the treatment of immune-mediated diseases, has been proposed as an option. While in vitro studies showed the ability of HQN to inhibit SARS-CoV-2 activity [2, 3], consequent clinical trials have not yielded promising results for the effectiveness of HQN in treatment and prophylaxis of COVID-19.[4–6]. Yet, there are some countries that included HQN in their national case manage-

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Correspondence: Dr Srividya J (Email: srvdbhardwaj523@gmail.com)

ment and prophylaxis guidelines including India. Indian Council of Medical Research (ICMR) under Government of India (GOI) has recommended hydroxychloroquine (HCQ) for adults in a dosage of 400 mg twice a day on first day followed by 400 mg once a week for 7 weeks for chemoprophylaxis for COVID-19 for all health care workers (HCWs) involved in the care of suspected or confirmed cases of COVID-19, and also for household contacts of laboratory confirmed cases. [7]

There are apprehensions amongst healthcare workers (HCWs) about COVID-19 as well as about taking HCQ [8–11] as chemoprophylaxis because of possible side effects.[12-17] There is currently limited experience related to administration of HCQ as chemoprophylaxis for COVID-19 as the general guidance is based on a small sample of data. This study was conceived when HCQ chemoprophylaxis administration was initiated for being given to HCWs.

The study was conducted to determine the status of chemoprophylaxis among medical practitioners in Karnataka, involved in the care of COVID19 cases and also to determine the protectiveness of chemoprophylaxis among medical practitioners in Karnataka, involved in the care of COVID19 cases.

METHODOLOGY

A cross-sectional study was carried out between June- August 2020, among Medical Practitioners (both government and private) involved in COVID-19 care, across Karnataka. A pretested online questionnaire was provided through Google forms to 236 Medical practitioners. The questionnaire was prepared after extensive literature search and with the help of subject expert in the institute. The questions included details on baseline characteristics, knowledge about COVID chemoprophylaxis, details of chemoprophylaxis taken. Data was analyzed using SPSS version 20. Descriptive data expressed in proportions. Chi-square test was applied to determine the association between the status of chemoprophylaxis and predictor variables ($p<0.05$ considered statistically significant).

Informed consent was taken from the study participants and confidentiality was ensured.

RESULTS

Out of 236 Medical practitioners, 118 responded to the goggle forms and out of this 18 were incomplete. Out of 100 Medical Practitioners responded completely, majority were males (69%), aged between 31-50 years (58%), junior doctors/postgraduates (52%), working at private health care setups (74%) [Table 1]. 98% were aware of chemoprophylaxis.

Among 46 Medical practitioners who had taken chemoprophylaxis [Fig 1], 31 (67%) of them had initiated chemoprophylaxis within 3 days of exposure to COVID-19 confirmed cases. 12 Medical Practitioners (26%) experienced side effects like hypoglycemia, GI disturbances. 27 out of 46 medical practitioners (59%) Completed chemoprophylaxis. After completion Of Chemoprophylaxis, out of 27 medical practitioners, 18 (67%) got tested for COVID 19 and majority i.e.,16(89%) was tested negative and only 2 (11%) tested positive. Statistically significant association was also seen with age, gender, experience in years. The difference in completion of chemoprophylaxis among government (15[79%)] and private doctors (12[44%)] was found to be statistically significant.[Table 4 & Table 5]

Table 1: Baseline Characteristics of the study participants (n=100)

Variable	Participants (n=100) (%)
Age	
Less than 30yrs	22
31 – 50 yrs	58
More than 50 yrs	20
Gender	
Male	69
Female	31
Qualification	
MBBS	24
MD/MS	76
Designation	
Resident	30
Junior Consultant	52
Senior Consultant	18
Experience in years	
Less than 5 yrs	24
5 – 10 yrs	48
More than 10 yrs	28
Type of Institution	
Government	26
PHC	4
Taluk Hospital	8
District Hospital	58
Medical College Hospital	30
Private	74
Clinic	8
Hospital	41
Medical College Hospital	51

Table 2: Knowledge based questions (n=100)

Questions	Respondents
Is there any chemoprophylaxis for Health care workers involved in the care of Suspect/confirmed COVID - 19 cases?	
Yes	98(98%)
No	2(2%)
If Yes, Mention the drug/s (with complete dosage) recommended for the chemoprophylaxis of COVID 19 as per the guidelines of Govt of India (n=98)	
Correct:	72(73%)
Incorrect:	26(27%)
Are there any baseline investigations to be done before initiating chemoprophylaxis?	
Yes	88(88%)
No	12(12%)
If Yes, Mention the Investigations (n=88)	
Correct:	69(78%)
Incorrect:	19(22%)

Table 3: Practice of the respondents regarding Covid 19 Prophylaxis (n=100)

Practices regarding prophylaxis	Respondents
Had taken / taking the chemoprophylaxis of COVID -19	46(46%)
Reason/s for not taking prophylaxis (n=54)	
Fear of side effects	14(30%)
Contraindication	4(7%)
Not directly involved in the care of suspect/confirmed COVID 19 case	32(60%)
No evidence	2(3%)
Reason for contraindication for chemoprophylaxis (n=4)	
Recent MI	2(75%)
Retinopathy	2(50%
Diabetes	2(50%)
Pregnancy/Lactation	1(25%)
Chemoprophylaxis is advised by (n=46)	
Self-Administered	42(91%)
Other Registered Medical Practitioners	4((9%)
Pulmonologist	1(25%)
Physician	2(50%)
ENT surgeon	1(25%)
Contact with COVID 19 SUSPECT cases prior to initiation of chemoprophylaxis (n=46)	
Exposed	18(39%)
Not exposed	21(46%)
Don't Know	7(15%)
In case of exposure, duration between the exposure and the initiation of chemoprophylaxis (n=18)	
Less than 3 days	3(17%)
3 days to 1 week	13(72%)
More than 1 week	2(11%)
Contact with COVID 19 Confirmed case prior to initiation of chemoprophylaxis (n=46)	
Yes	6(13%)
No	35(76%)
Don't Know	5(11%)
In cases of exposure with confirmed case, duration between exposure and initiation of chemoprophylaxis. (n=6)	
Less than 3 days	4(67%)
3 days to 1 week	2(33%)
Baseline ECG done before starting the chemoprophylaxis (n=46)	24(52%)
Retinal scan done before starting the Chemoprophylaxis (n=46)	2(4%)
Mention the drug/s taken for chemoprophylaxis (n=46)	
Hydroxychloroquine	40(87%)
Hydroxychloroquine + Azithromycin	6(13/%)
Place from where the drug was obtained(n=46)	
Govt	12(26%)
Private	34(74%)
Hydroxychloroquine dose taken on day 1 (n=46)	
200mg	4(9%)
400 mg	14(30%)
800 mg	28(61%)
Azithromycin dose (n=6)	
250 mg	2(33%)
500 mg	4(67%)
Present status of Chemoprophylaxis (n=46)	
Completed	27(59%)
Ongoing	12(26%)
Discontinued	7(15%)
If discontinued, reason/s. (n=7)	
No established safety from studies	5(71%)
Got infected with COVID 19	2(29%)
Adverse effects, while on chemoprophylaxis? (n=46)	
Yes	12(26%)
No	34(74%)
If yes, mention (n=12)	
GI Disturbance	8(66%)
Abdominal Pain	2(17%)
Hypoglycemia	2(17%)
COVID 19 testing after completion of chemoprophylaxis,? (n=27)	
Yes	18(67%)
No	9(33%)
Positive the test results, in cases o testing (n=18)	2(11%)

Table 4: Distribution of study participants taken chemoprophylaxis.

Variables	Chemoprophylaxis		Total	P value
	Taken (n=46)(%)	Not taken (n=54)(%)		
Age				
< 30 yrs	8 (36)	14 (64)	22	**0.006**
31 – 50 yrs	34 (59)	24 (41)	58	
> 50 yrs	4 (20)	16 (80)	20	
Gender				
Male	38 (55)	31 (45)	69	0.006
Female	8 (26)	23 (74)	31	
Qualification				
MBBS	6 (25)	18 (75)	24	0.017
MBBS/MD/MS	40 (53)	36 (47)	76	
Designation				
JR	11 (37)	19 (63)	30	6.320
JD/ PG	30 (58)	22 (42)	52	
Specialist	5 (28)	13 (72)	18	
Experience				
<5 yrs	6 (25)	18 (75)	24	<0.001
5 to 10 yrs	32 (67)	16 (33)	48	
> 10 yrs	8 (29)	20 (71)	28	
Type of Institution				
Government	19 (73)	7 (27)	26	0.001
Private	27 (36)	47 (64)	74	

JR= Junior Resident; JD=Junior Doctor; PG= Post graduate
P value <0.05 indicate statistical significance

Table 5: Comparison of study participants according to type of institution

Variables	Type of Institution		Total	P value
	Govt (n=19)	Private (n=27)		
Chemoprophylaxis advice				
Self	17 (90)	25 (93)	42	0.711
Other RMP	2 (10)	2 (7)	4	
Baseline ECG prior to chemoprophylaxis				
Done	6 (32)	18 (66)	24	0.018
Not done	13 (68)	9 (33)	22	
Retinal Scan done prior to chemoprophylaxis				
Yes	1 (5)	1 (4)	2	0.798
No	18 (95)	26 (96)	44	
Side effects reported				
Yes	9 (47)	3 (11)	12	0.005
No	10 (53)	24 (89)	34	
Completion of chemoprophylaxis				
Yes	15 (79)	12 (44)	27	0.019
No	4 (21)	15 (56)	19	

P value <0.05 indicate statistical significance

DISCUSSION

The present study was aimed to determine the status of chemoprophylaxis and protectiveness of chemoprophylaxis among medical practitioners in Karnataka, involved in the care of COVID19 suspects/confirmed cases.

The study found that around 46% of the HCWs had accepted the prophylaxis and taken HCQ at least once as a part of prophylaxis, 91% self-administered. The finding is comparable with findings of the studies conducted among travellers to assess the acceptance to chloroquine/ mefloquine prophylaxis for malaria, which shows 52% to 89% acceptance rate. [18-21] However, as the present study was conducted among health workers, we could expect a higher acceptance among our study population. As expressed by study participants, common reasons for not taking prophylaxis were fear of side effects, already on other medication and no existing clear evidence on effectiveness of chemoprophylaxis to prevent COVID-19. [22-30] In particular fear of side effects could be attributed to several reports of side effects. These kinds of advices were not issued by reputed health organisations when chloroquine was considered as prophylaxis for malaria. Also, there is no clear evidence of effectiveness of prophylaxis against COVID-19 as it is against malaria. HCWs are well aware of these factors which lead to relatively lesser acceptance. Among participants who had accepted the prophylaxis, 59% had shown complete adherence. Common adverse effects were gastro intestinal related followed by allergic reactions and headache. Carme B et al reported that around 12% of people who had taken chloroquine prophylaxis to prevent malaria, had developed adverse effects which is comparable to our findings.[22] Literature also shows that gastrointestinal adverse effects and head ache are the common adverse reactions of HCQ, which is similar to our study. [12-14,30]

27 out of 46 medical practitioners (59%) Completed chemoprophylaxis. After completion Of Chemoprophylaxis, out of 27 medical practitioners, 18 (67%) got tested for COVID 19 and majority i.e., 16 (89%) were tested negative, indicating good protectiveness of hydroxychloroquine as chemoprohylactic drug and only 2 (11%) tested Statistically significant association was seen with age (31-50 yrs,p =0.006791), gender (males, p = 0.006612), experience in years(5 to10 yrs, p = 0.000346). positive. The difference in completion of chemoprophylaxis among government (15[79%)] and private doctors (12[44%)] was found to be statistically significant. This difference may be due to Government guidelines adopted and availability of Hydroxychloroquine drugs in Government hospitals compared to Private hospitals. Majority had got baseline ECG done prior to initiation of chemoprophylaxis due to easy availability and affordability compared to retinal scan.

Overall our study found that there is moderately good acceptance for the prophylaxis with good adherence. In our study around 89% tested negative for COVID 19 after completion of chemoprophylaxis, which indicates good protectiveness of chemoprophylaxis.

Strength of the present study are: 1) interview was conducted by trained HCWs in research, and data were entered in digital data entry form which would have minimised the error while collecting the data, and 2) all study participants were closely followed up regularly to assess development of any side effects by research team. The study has a few limitations like, 1) participation was entirely voluntary basis which may lead to selection bias, and 2) adher-

ence to chemoprophylaxis was self-reported which may be slightly higher than actual adherence.

CONCLUSION

In the present study, 46% had taken chemoprophylaxis and 16 (89%) Medical practitioners were tested negative after completion of chemoprophylaxis, indicating good protectiveness of hydroxychloroquine as a Chemoprohylactic drug. Despite having adequate knowledge on ICMR guidelines for COVID 19 chemoprophylaxis, 54% of medical practitioners have not taken chemoprophylaxis mainly for the fear of adverse events. Inview of the current ongoing pandemic of COVID 19, protection of medical practitioners is very much important.

With further evidence on safety of use of Chemo prophylactic drugs, adequate base line Investigations, regular monitoring, chemoprophylaxis status can be improved. among medical practitioners.

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