

CHLOROQUINE AS A PROPHYLACTIC AGENT FOR COVID-19 INFECTION - A SURVEY AMONG SOUTH INDIAN POPULATION

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ABSTRACT

COVID 19 being the deadliest disease all over the world regarded as the pandemic, the hope of every people is to get an effective medication that can counter it. There is a strong belief that chloroquine may help in controlling the virus. It is taken as an oral preparation. Chloroquine or hydroxychloroquine is a drug class 4- aminoquinoline. Chloroquine is contraindicated in people with heart disease or diabetes. It has a narrow therapeutic index and can cause toxicity easily. A derivative of chloroquine, hydroxychloroquine was synthesised first in 1946. Chloroquine is primarily used to prevent and treat malaria in areas where malaria remains sensitive to its effects. A self-administered questionnaire was prepared consisting of 10 questions and was distributed to a random population through Google docs and we got almost 100 responses. About 63% of the participants are aware of COVID-19 and chloroquine. SPSS software was used to analyse the data for descriptive statistics and chi-square analysis for association with gender. About 50% of the participants' perception is that chloroquine will protect them from COVID-19, and are aware that hydroxychloroquine and other forms of chloroquine are undergoing a clinical trial of COVID-19. If it succeeds it will have a big impact on the current crisis.

KEYWORDS: COVID 19, chloroquine, pandemic, prevention, survey.

INTRODUCTION

COVID-19 is a pandemic disease spreading all over the world. COVID-19 is a pneumonia of unknown cases detected in Wuhan, China. It was first reported to the WHO country office in China on 31 December 2019. The virus has been named SARS-CoV-2 and the disease is now called COVID-19. One of the deadliest diseases for which medication is highly needed to save mankind. For which chloroquine or hydroxychloroquine is a prophylactic agent. Chloroquine is a member of a drug class 4- aminoquinoline. Chloroquine is a medication primarily used to prevent and treat malaria in areas where malaria remains sensitive to its effect (Shah et al. 2020). Chloroquine is also occasionally used for amebiasis that is occurring outside the intestine, rheumatoid arthritis and lupus erythrocytes. While it has not been formally studied in pregnancy, it appears safe. It has also been used as a prophylactic medication for health care workers. It is taken by mouth. Chloroquine is contraindicated in people with heart disease or diabetes. It

has a narrow therapeutic index and can cause toxicity easily. The recommendation by Professor Raoult was based on the theory of hydroxychloroquine on the virus application in vitro. [(Moore 2020)].

A derivative of chloroquine, hydroxychloroquine was synthesised first in 1946. The hydroxychloroquine was synthesised by adding a hydroxyl group to chloroquine And is much less toxic than chloroquine in animal studies. Chloroquine has anti-viral properties and hence has been used in SARS coronavirus infection. Chloroquine has also been found to have anti-COVID-19 activity in vitro recently (Kapoor and Kapoor, n.d.). Chloroquine and hydroxychloroquine could be the potential drug for treating COVID 19 infection for these reasons. Although there is no clinical evidence to support the use of chloroquine or hydroxychloroquine for treating sars-COV-2 infection through many trials in these drugs are already underway. ,(Klonoff, and Akram 2020). Some of the pandemic include African swine fever virus, HIV, SARS-COV, influenza A, chikungunya, ebola virus, Zika virus and now SARS-CoV-2. Treatment with chloroquine has shown better results but also strong differences of applications between live animals and cell line. [(Rebeaud and Zores 2020)]. In many hospitals, patients with unknown or suspected coronavirus infection are routinely being treated with chloroquine or hydroxychloroquine and it is often being or administered with other agents such azithromycin, these drugs on synergistic activity causes QT interval prolongation on ECG. [(Fihn, Perencevich, and Bradley 2020), (Koh 2020), (Gautret et al., n.d.)]. The potential drug targets depend on the natural cycle of the virus. The virus is Ph- dependent and has internalisation and fusion with lysosomes of the cell (Meo et al. 2020) . Chloroquine due to its significant inhibitory antiviral effects when the susceptible cells Were treated either prior Two or after infection have been possible prophylactic and therapeutic use. [(Vincent et al. 2005), (Pastick et al. 2020)]

.Hydroxychloroquine is seen to be effective against disease manifestation such as joint pain and rashes, reduces thrombotic events and prolong survival. It is noted that the travel of hydroxychloroquine can lead to flares of diseases including life attending manifestations such as lupus nephritis [(Taccone, Gorham, and Vincent 2020), (Yazdany and Kim 2020)].

Previously our team has conducted many types of research including numerous studies and reviews (Johnson et al. 2020) (Sekar et al. 2019), and animal studies (Keerthana and Thenmozhi 2016) (Seppan et al. 2018) (Pratha and Thenmozhi 2016) (Krishna and Babu 2016) (Nandhini, Babu, and Mohanraj 2018) (Subashri and Thenmozhi 2016) (Sriram et al. 2015) (Menon and Thenmozhi 2016) (Samuel and Thenmozhi 2015) (Hafeez and Thenmozhi 2016) (Choudhari and Thenmozhi 2016) (Kannan and Thenmozhi 2016) (Thejeswar and Thenmozhi 2015).

The principal aim of this survey is to acknowledge the public perception and awareness about chloroquine as a prophylactic agent for covid 19 infection.

MATERIALS AND METHODS

A survey was conducted with a self-administrated questionnaire comprising 10 questions and was circulated among the south Indian general population randomly through an online platform comprising all ages and both sexes until 100 respondents completed the survey . The questionnaire was prepared to assess the awareness level of the participants and about the use of HCQs in prevention and trt of covid 19 like selecting survey participants randomly, fixing restrictions over the particular population and age group, elimination of irrelevant questions it's been asked to participants were taken a few measures to prevent sampling bias. The questionnaire was recorded using an online portal called Google forms. The responses recorded using the online platform were analyzed using the statistical software SPSS version 20. Short analyses were carried out with responses recorded in the software and results were represented using pie charts.

RESULTS & DISCUSSION

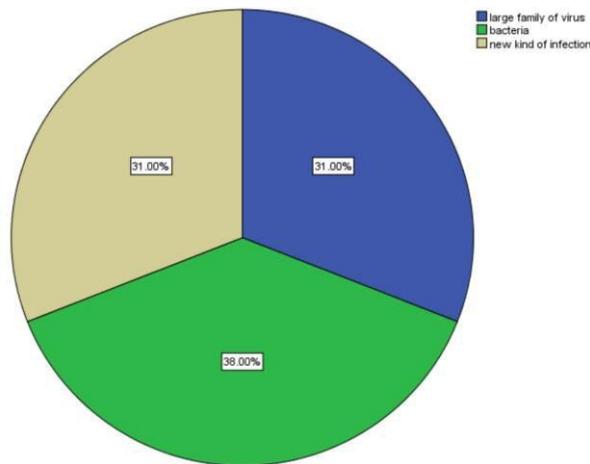


Fig 1: Pie Chart representing the percentage distribution of awareness about the origin of covid 19, about 31% of the participants responded to bacteria (blue), 31% responded to a large family of viruses (gold) and 38% responded to a new kind of infection (green).

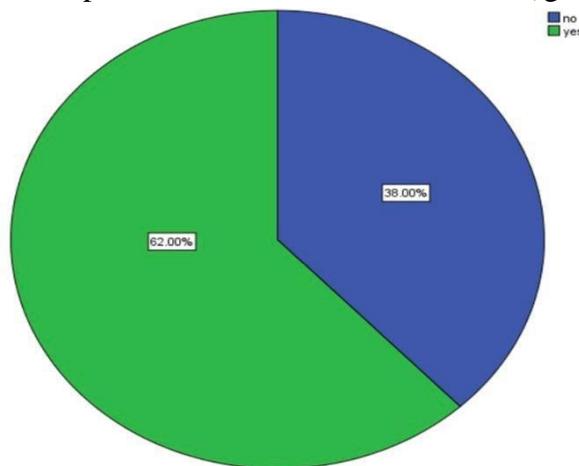


Fig 2: Pie Chart representing the percentage distribution of awareness of coronavirus being contagious and about 62% participants responded yes (green) and 38% responded no (blue)

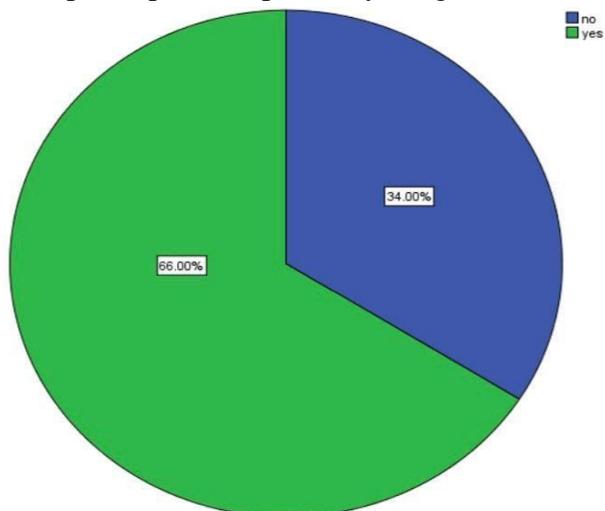


Fig 3: Pie Chart representing the percentage distribution of awareness of coronavirus being pandemic, The majority of participants 66% responded yes (green) and 34% responded no (blue).

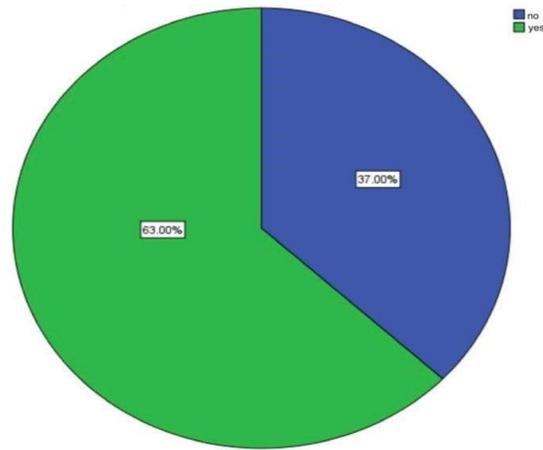


Fig 4: Pie Chart representing the percentage distribution of awareness of hydroxychloroquine as a prophylactic drug, The majority of participants 63% responded yes (green) and 37% responded no (blue).

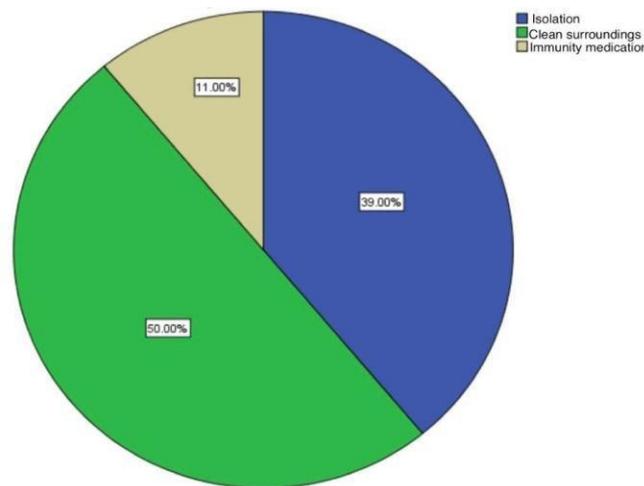


Fig 5: Pie Chart representing the percentage distribution of awareness about the preventive ways from getting infected from covid 19, for which about 50% of the participants responded to clean surroundings (green), 39% isolation (blue) and 11% responded immunity medication (gold).

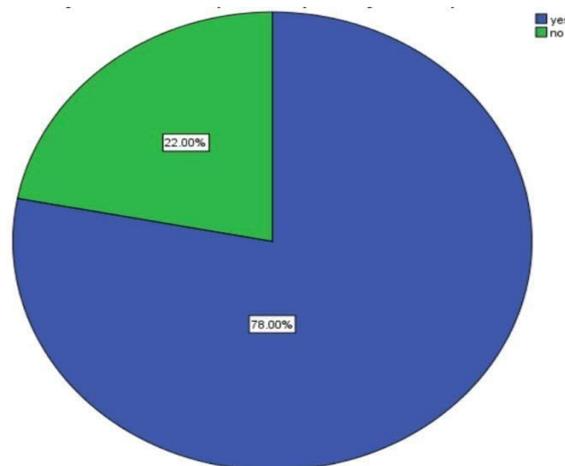


Fig 6: Pie Chart representing the percentage distribution of awareness about the chloroquine primarily used for malaria, The majority of participants 78% responded yes (blue) and 22% responded no (green).

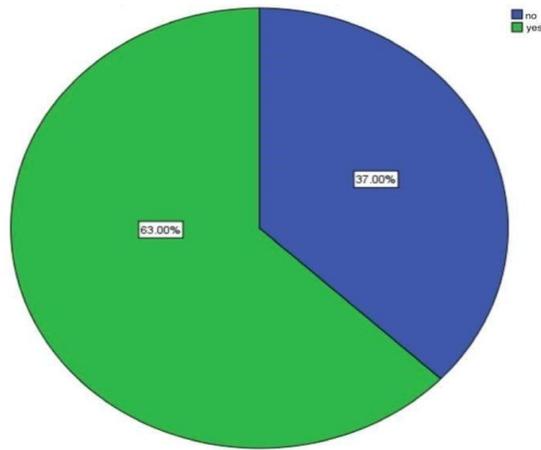


Fig 7: Pie Chart representing the percentage distribution of awareness about hydroxychloroquine being tested as a prophylactic agent against COVID 19, the majority of participants 56% responded yes (blue) and 44% responded no (green).

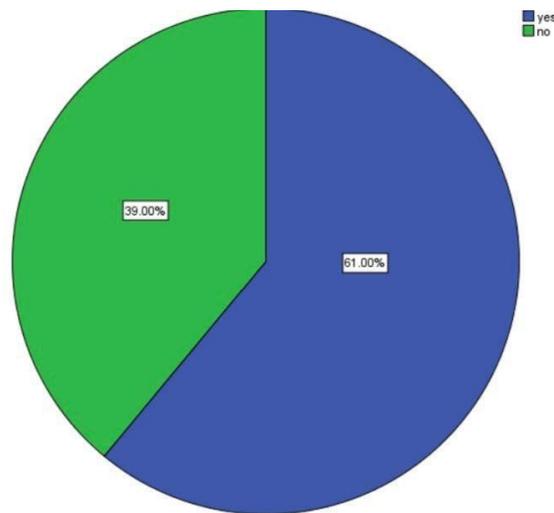


Fig 8: Pie Chart representing the percentage distribution of awareness about chloroquine being a generic medication and a majority of participants 61% responded yes (blue) and 39% responded no (green).

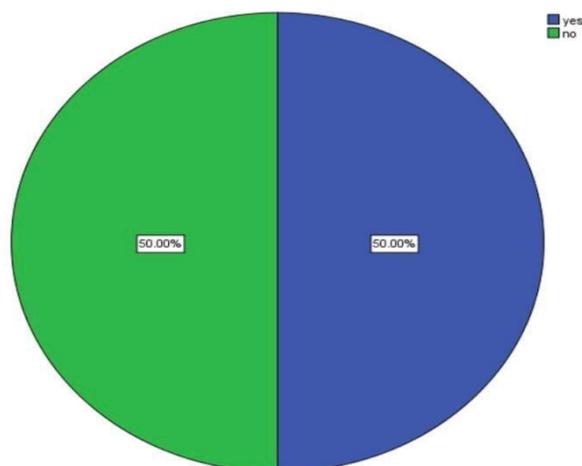


Fig 9: Pie Chart representing the percentage distribution of perception of participants that hydroxychloroquine will help to resolve coronavirus infection. Participants of 50% responded yes (blue) and 50% responded no (green).

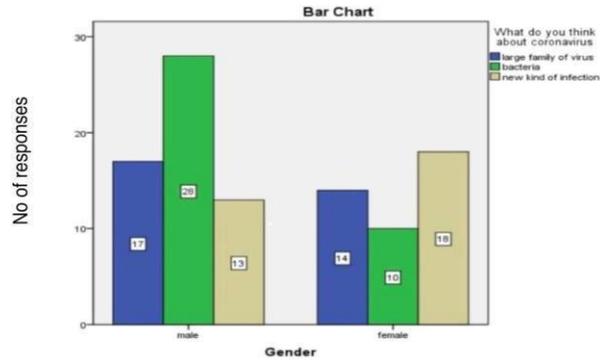


Fig 10: Bar chart showing the association between gender and the awareness of the origin of coronavirus. The X-axis represents gender, Y-axis represents the count of responses. Pearson's chi square value: 7.249 DF: 2 P value: 0.027 [<0.05], statistically significant. Hence the awareness of origin of coronavirus was associated with the gender.

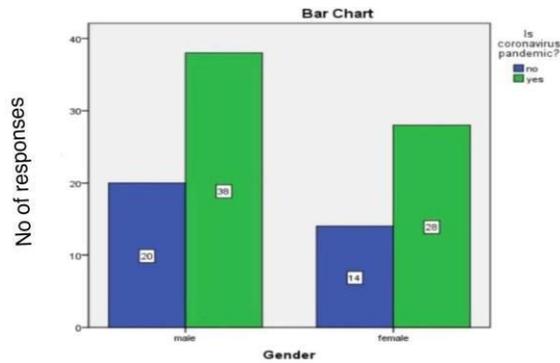


Fig 11: Bar chart showing the association between gender and the awareness of coronavirus being a pandemic. The X-axis represents gender, Y-axis represents the count of responses. Pearson's chi square: 0.14. DF: 1. P value: 0.905 [>0.05], statistically not significant. Hence the awareness about coronavirus as pandemic was not different in males and females.

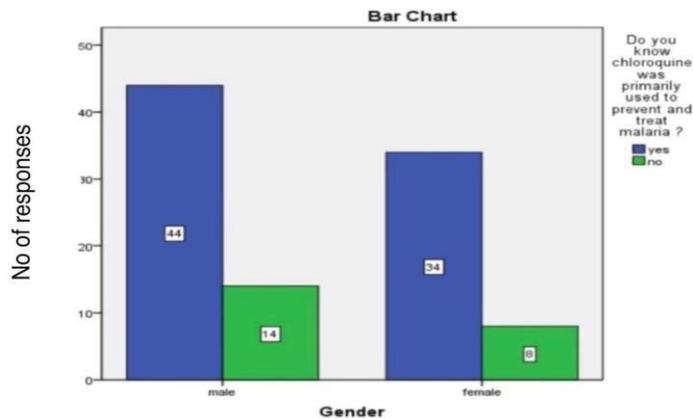


Fig 12: Bar chart showing the association between gender and the awareness of chloroquine primarily used as a medication to prevent malaria. The X-axis represents gender, Y-axis represents the count of responses. Majority among the males and females were aware. Pearson's chi square value: 0.368.

DF: 1. P value: 0.544(>0.05),not significant. Hence awareness about chloroquine used for malaria was not different in males and females.

With the results obtained from the Google forms. The results are analysed statistically using SPSS software. The first question was about the awareness about coronavirus. The responses were 100% of about 31% of the participants responded as a large family of viruses and 31% responded as bacteria and 38% responded as a new kind of infection.(fig 1) The question was that Is Coronavirus contagious and about 62% responded yes and about 38% responded no.(fig 2) [3,4] study which explained COVID-19 as contagious. The Next question was Coronavirus pandemic and a majority of 66% responded yes and 34% responded no. The awareness about pandemic is explained (fig 3). [1,2]. The next question was the knowledge about chloroquine protection from coronavirus and the responses where about majority of 63% responded yes and 37% responded no (fig 4).[3,4]. Usage of chloroquine and hydroxychloroquine. The question included the perception of treatment for COVID-19 and the responses with 39% of isolation 11% of immunity medication and about 50% answered clean surroundings. (fig 5) [5,6,(Vincent et al. 2005)] . Discussed about isolation, social distancing and awareness of medication. Then the next question was knowledge of chloroquine used as an antimalarial drug and a majority of 78% answered yes and 22% answered no (fig 6) [(Marmor 2020), (Erickson, Chai, and Boyer 2020)]. . awareness on the medication, all of them have mentioned it as an antimalarial drug. The next question was knowledge of it being studied for COVID-19, the total responses were hundred and a majority of 56% responded yes and 44% responded no (fig 7) [1-(Marmor 2020)] Discussed and [(Koh 2020)] . Study under chloroquine and hydroxychloroquine[12,(Chen et al. 2020),18,19]. The question was chloroquine is a generic medication, the responses were a majority of 61% yes and 39% no (fig 8) [4]. Study explained routinely used for treatment,[(Geleris et al. 2020), 19] . . The next question by the perception of will it prevent from coronavirus, responses where 50% is in 50% no.(fig 9) [6,(n.d.), (Erickson, Chai, and Boyer 2020),19]. Bar graph represents the correlation between gender and the awareness of the origin of coronavirus, the male participants 17 responded to a large family of viruses , 28 responded to bacteria and 13 responded to a new kind of infection. The female participants, 14 of the female participants responded to a large family of viruses , 10 responded to bacteria and 18 responded to a new kind of infection.(fig 10). Bar chart showing the correlation between gender and the awareness of coronavirus being pandemic, the male participants 20 of them were not aware and 38 of them were aware, the female participants were 14 were not aware and 28 were aware. (fig 11). Bar chart showing the correlation between gender and the awareness of chloroquine primarily used as medication to prevent malaria, the male participants 44 of them were aware and 14 were not. The female participants, 34 were aware and 8 were not (fig 12).

CONCLUSION

The medication chloroquine or hydroxychloroquine is being used for malaria disease and it is a general medicine now it is for the treatment of COVID 19, if its success rate is high it will be very useful to save lives in fighting against a deadly virus and eradicated. People's perceptions of hydroxychloroquine and chloroquine are mixed opinions and very neutral. The perception can be concluded by the results of which was 50-50.

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