

Clinical Characteristics of Four Medical Doctors used Chloroquine as prophylaxis with 2019 Novel Coronavirus-Infected Pneumonia

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Received date: January 01, 2021; **Accepted date:** January 23, 2021; **Published date:** February 13, 2021

Citation: Talar V. Aktokmakyan, Mehmet A. Turgut, Valiyev O., Yunus E. Aktimur, Ahmet G. Durmaz, Celebi F., (2021) Clinical Characteristics of Four Medical Doctors used Chloroquine as prophylaxis with 2019 Novel Coronavirus-Infected Pneumonia. *J Surgical Case Reports and Images* 4(1); DOI: 10.31579/2690-1897/058

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Abstract

Aim: The aim of this study to report the initial experience in a General Surgery clinique with the epidemiologic investigation of the COVID-19 outbreak, clinical features, and usage of prophylaxis.

Material and Methods: Descriptive cases of 4 general surgery assistants diagnosed with Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) confirmed SARS-CoV-2 infection in Turkey from March 20 to March 30, 2020; the final follow-up date was March 31, 2020. Clinical, laboratory, and radiologic data were collected. The clinical course was summarized, including usage of Chloroquine as prophylaxis.

Result: Among the 4 medical doctor patients with PCR-confirmed SARS-CoV-2 infection with the mean age of 29, all of them were male (100%), the clinical presentation was an upper respiratory tract infection in all of the patients. All patients use Chloroquine prophylactically before symptoms onset.

Conclusions: Among the 4 medical doctors diagnosed with SARS-CoV-2 infection in the General Surgery Clinique in Turkey, the clinical presentation was frequently a mild respiratory tract infection with the use of Chloroquine.

Keywords: chloroquine, covid-19, Prophylaxis

Running Title: Detailed review of the frontline healthcare workers

Introduction

A novel coronavirus was identified at the end of the year 2019 in Wuhan, China [1]. A large case series of 72314, infected individuals has since refined these initial estimates in China to severe disease in 14% and a case fatality rate of 2.3% [2]. Patients with the illness, called coronavirus disease 2019 (COVID-19), frequently present with fever, cough, and shortness of breath within 2 to 14 days after exposure [3]. It has been reported that chloroquine and hydroxychloroquine, which are used in the treatment of malaria, can be effective in many in vitro experiments against sars, including SARS-CoV-2 [4]. Besides, preliminary results of some studies have been published that these drugs reduce the viral load in COVID patients and lead to positive results [5, 6]. Apart from the very limited data in terms of treatment, some researchers have suggested that these agents can be used in prophylaxis [7, 8]. In this study, we will examine the four general surgical assistants infected by COVID, although they use the chloroquine preparation prophylactically.

Material and Methods

Between March 20 and 30, 2020 four general surgical assistants infected with SARS-CoV-2 were diagnosed in Turkey, with symptoms onset from March 21 to March 31, 2020. All patients reported that they worked at the same clinic in the 14 days before illness onset. Patients were categorized

according to their symptoms. All of them had abnormal computerized tomography (CT) findings. (Table).

Demographics	All patients (n=4)
Mean Age	29(27-30)
Sex	Male (4/4)
Comorbidity	No
Allergic Rhinitis	2/4
Signs and Symptoms	
Fever	2/4
Cough	2/4
Sore Throat	1/4
Headache	1/4
Weakness	1/4
Shortness of breath	0/4
Biochemical Parameter	
Mean WBC	6,27 10 ³ /uL [5,2-8,6]
Mean Hgb	15,2 g/dL [14,2-16,3]
Mean Plt	321 10 ³ /uL [285-398]

Mean Neu	6,29 10 ³ /uL [5,27-6,85]
Mean Lym	2,27 10 ³ /uL [1,96-3,17]
Mean CRP	10,2 mg/L [1,2-16,9]
Radiological Findings (CT)	
Bilateral diffuse opacities	1/4
Unilateral diffuse opacities	3/4

(WBC: White Blood Cell, Hgb: Hemoglobin, Plt: Platelet, Neu: Neutrophil, Lym: Lymphocyte, CRP: C - reactive protein)

Table 1. Clinical features of patients infected With SARS-CoV-2

Results

No patients presented with severe acute respiratory distress syndrome and no supplemental oxygen. All biochemical parameters remained normal. In radiographic findings developed as bilateral/unilateral diffuse airspace opacities. (Figure A, B, C, D)

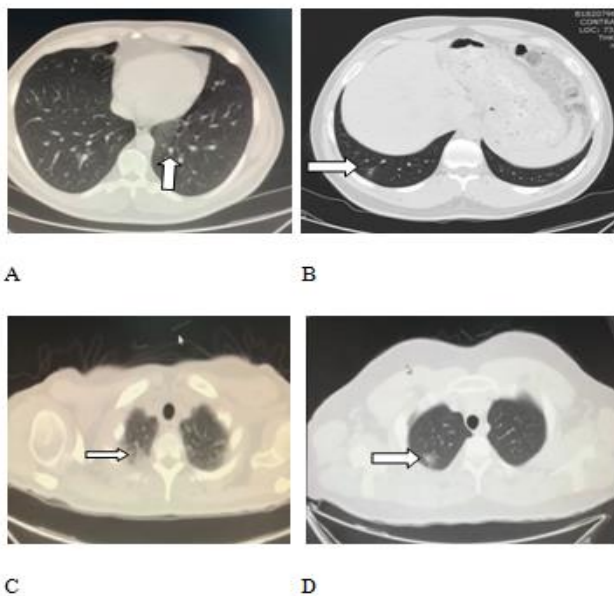


Figure A, B, C, D: Abnormal CT findings of four patients

No concomitant bacterial/viral infections were detected and there were no deaths as of March 31, 2020. Nasopharyngeal swab specimen was collected for testing. COVID virus was detected by PCR in all patients as positive. All of them received Chloroquine prophylactically before symptoms [9].

Discussion

Chloroquine, a widely-used antimalarial, and autoimmune disease drug have recently been reported as a potential broad-spectrum antiviral drug. [10,11] Chloroquine is known to block virus infection by increasing the endosomal pH required for virus/cell fusion, as well as interfering with the glycosylation of cellular receptors of SARS-CoV [12]. That is, Chloroquine can block viral attachment and enter host cells. The dose of chloroquine used for the treatment of rheumatoid arthritis (3.6 mg/kg) generates plasma chloroquine concentrations of 1–3 μ M, which is in the same concentration range as the IC50 for inhibition of SARS-CoV [13]. Moreover, Chloroquine has a long safety record, is in exposure, and widely variable [14]. Chloroquine is given prophylactically at a dose of

300 mg/week to people traveling to the malaria-endemic area. The fact that chloroquine exerts an antiviral effect during pre-and post-infection conditions suggests that it is likely to have both prophylactic and therapeutic advantages. Recently, Keyaerts et al. reported the antiviral properties of chloroquine and identified that the drug affects SARS-CoV replication in cell culture, as evidenced by quantitative RT-PCR [15]. Pre-exposure prophylaxis of 250-500 mg daily and post-exposure at 8 mg/kg/day for 3 days [16]. Initially, our patients presented with initial clinical presentations. Since the increase in the number of cases and evidence of asymptomatic transmission among the community, contact with infected individuals was no longer mandatory. For healthcare workers, this risk reaches immeasurable dimensions. Increased viral load makes healthcare workers inevitable to become infected. As we noted in our article, although four general surgeries proceed with moderate to mild symptoms, there is lung damage radiologically. This study has several limitations such as small number of cases and pandemic conditions.

Conclusion

Findings from this study are valuable early data. Among four medical doctors diagnosed with SARS-CoV-2 infection in Turkey, the clinical presentation was frequently mild respiratory tract infections despite the use of Chloroquine before symptom onset. Although our study seems quantitatively inadequate; we believe that it is qualitatively valuable and important on a pilot study basis.

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