

Ocular Symptoms Experienced by People With Covid-19 Infection

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ABSTRACT

Aim: To study the ocular symptoms experienced by people with COVID-19 infection.

Study design: It was a cross sectional descriptive study.

Duration and setting of study: The study was conducted online in Peshawar over a period of 4 months from 1st September to 31st December 2020.

Methods: In order to investigate the different types and frequency of distinct ocular symptoms in individuals diagnosed with COVID-19, a standard online questionnaire was adapted from a published article. The questionnaire includes both the ocular and systemic symptoms of COVID-19 infection. The online questionnaire was shared with participants who were diagnosed with COVID-19 through various social media groups and sites.

Results: In this study, we evaluated 186 eyes of 93 patients who had a positive COVID-19 test during a period of 4 months. In our study the age range was 30 to 50 years. Male were 60 (64.5%) and female were 33(35.5%). More than 90% of the patients had more than one systemic symptoms of COVID-19. The ocular symptoms were present in 52 eyes of 26 patients which was 27.95 % of total COVID-19 patients. The most prevalent symptom was red eye which was 28.85%, followed by photophobia and itchy eyes which were 17.3% each. Foreign body sensation occurred in 13.5% eyes.

Conclusion: It was concluded that various ocular symptoms are associated with COVID -19 infections.

Keywords: COVID-19, Ocular symptoms, Systematic symptoms.

INTRODUCTION

Corona virus 2 is a pandemic condition which was associated with severe health problems. It was ranged from asymptomatic condition to severe life threatening respiratory distress. It can affect all the systems of the body.¹

World widely, the ophthalmologist also reported different eye manifestations of the infections associated with the corona virus and these occur at the different stages of the viral disease. At the time of infection, the viral ribonucleic acid (RNA) was isolated from the ocular tissues but still the route of infection from the eye was not established. The eye manifestations may be the first or presenting feature of the corona virus infection.^{1,2} Irritated eyes and hearing problems may be the first sign of corona virus infection, besides fever, cough or changes in taste and smell. While in some cases it may develop several weeks after the covid-19 infection.^{3,4} The eye problems may occur either due to direct effect of the corona virus, activation of the coagulation cascade, immune response and/or prothrombotic state caused by the virus.^{3,5}

The aim of this study was to identify the different ophthalmic manifestations associated with the

covid-19 infection, so that it can be treated in time if possible before it can cause serious complications.

METHODS

This cross sectional descriptive study was conducted on the outdoor patients in the Department of Ophthalmology, HMC Peshawar over a period of 4 months from 1st September, 2020 to 31st December, 2020. Data was collected with the help of a pre design proforma sent to COVID-19 infected individuals through social media and emails. To investigate the different types and frequency of distinct ocular symptoms diagnosed with COVID-19, a standard online questionnaire was adapted from a published article.⁸ The questionnaire includes both the ocular and systemic symptoms such as fever, cough, loss of smell and taste, redness, itchy, watery, gritty eyes, photophobia and foreign body sensation. The goal of the questionnaire is to identify various ocular symptoms which occur in COVID-19 patients.

Due to social and public restrictions, this study could not be designed in a public or face-to-face setting. The online questionnaire was shared with participants who had been diagnosed with COVID-19 through various social media groups and sites including Facebook and WhatsApp.

RESULTS

Out of total of 93 patients (186 eyes), male were 60 (64.5%) and the range of the age was 30 to 50 years. Ocular symptoms were present in 52 eyes (27.95 %). Different ocular symptoms are given in table 1.

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Ocular symptoms experienced by people with covid-19 infection

Red eye was present in 15 (28.85%) followed by photophobia 9 (17.3%), itchy eyes 9 (17.3%) and foreign body sensation 7 (13.5%) eyes.

Table 1: Ocular symptoms in COVID-19 patients (n=52 eyes)

	n	%
Dry eyes	5	(9.6)
Watery eyes	4	(7.7)
Mucus discharge	1	(1.9)
Gritty eyes	2	(3.8)
Itchy eyes	9	(17.3)
Red eyes	15	(28.85)
F/B sensation	7	(13.5)
Photophobia	9	(17.3)
Total	52	100

n= number, F/B= foreign body.

DISCUSSION

The coronavirus is a globally pandemic condition. The spectrum of the disease is still not fully understood. COVID-19 is associated with various systemic and ocular symptoms. Therefore, patients may present with the ocular symptoms instead of fever, cough or changes in taste and smell. Therefore, it is necessary for the ophthalmologist to know the different COVID-19 ocular symptoms because the patient may first present to the ophthalmologist.^{1,3,5}

This study evaluated the ocular findings of patients who were COVID-19 positive or just recovered from the disease. In our study 90% of the patients had more than one systemic symptoms. It included exhaustion (90%), fever (75%), loss of smell and taste (72 %), and dry cough (65%), which were similar to other studies. In our study the ocular symptoms occurred in 27.95 % cases which is quite significant. This is because we conducted the study at the time when the COVID-19 was pandemic. While according to the various meta-analysis studies, the ocular manifestation can occur in 8.8% and 11.3% cases.^{6,7} But these ocular manifestations included both the signs and symptoms. While according to Aggarwal, et al.⁸ there is a higher incidence of ocular symptoms. While Kodati, et al. reported 77.9% ocular symptoms in COVID-19 positive patients.⁹

In our study, the most common ocular manifestation was red eye which was 28.85%, followed by photophobia and itchy eyes which was 17.3% and 17.3% respectively. Foreign body sensation occurred in 13.5% eyes. While in Aggarwal, et al.⁸ study, the ocular pain was most common symptom (31.2%) followed by discharge (19.2%), redness (10.8%), and conjunctivitis (7.7%). Similarly conjunctival hyperemia, conjunctival discharge, epiphora and foreign body sensation were observed in (7.6%), (4.8%), (6.9%), and (6.9%) respectively in different meta-analysis studies.^{6,7} While according to the Kodati, et al. study, the most common ocular symptoms were light sensitivity (28.1%), itchy eyes (26.0%), tearing (25.4%), eye redness (24.9%), mucous discharge (20.1%), foreign body sensation

(17.1%), and floaters (15.4%)⁹. While Pradhan et al. reported three most common ocular symptoms photophobia (18%), sore eyes (16%) and itchy eyes (17%) respectively.¹⁰

In our study there were some limitations. First, from the recruitment perspective, mostly those patients were accepted who had ophthalmic symptoms. Therefore, our data was subjected to selection bias and may have overestimated the frequency of some abnormalities found. Second, we did not control our data for climate factors, which may have influenced the results related to dry eye signs and symptoms. However our basic purpose of the study was to create awareness among the ophthalmologists that the COVID-19 patient may present with only the ocular symptoms.

CONCLUSIONS

Covid-19 infection is associated with various ocular symptoms. Therefore, the ocular history and examination are important both for the diagnosis of the COVID-19 infection as well as for the treatment of ocular complications.

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