Brief Communication

Frequency of Eye Symptoms in COVID-19 Patients in a Tertiary Care Hospital

Nida Armoghan Khan[1], Fahmina Nazir[2], Muhammad Awais Tahir[3]
Hafiz Muhammad Jahanzaib[4], Sadia Nazir[5]
[1-4]*Pakistan Institute of Medical Sciences,* [5]*Federal Government Poly Clinic Hospital*

ABSTRACT

We present frequency of ocular symptoms in COVID-19 patients in Pakistan Institute of Medical Sciences (PIMS), Islamabad. A total of 333 admitted patients with laboratory-confirmed SARS-CoV-2 infection were included. Patients were enquired and examined for any ocular symptoms that developed along with COVID-19. The results were stratified by sex, age, comorbidities, High Resolution CT (HRCT) and condition of conjunctiva. Data was analyzed using SPSS 28.0.1.1. Chi square test was performed to measure the p value of the reported eye symptoms. Out of the 333, 81 subjects fulfilled the inclusion criteria. Forty-six patients (56%) were females and 52 patients out of 81 (64.2%) reported redness of conjunctiva. A positive relationship between the COVID-19 and the frequency of eye symptoms was observed with p value of 0.001. A weak positive correlation between HRCT and conjunctiva was found through bivariate analysis (0.132).

Key Words: COVID-19, SARS-CoV-2, Conjunctivitis.

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Correspondence: Fahmina Nazir
Pakistan Institute of Medical Sciences
Email: fahmina@outlook.com

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INTRODUCTION

A plethora of symptoms have been associated with COVID-19 since the onset of the pandemic back in 2019. Some of the most recurrent ones include and are not limited to fever, loss of sense of smell and taste, respiratory problems, gastrointestinal and neurological issues.[1] Numerous studies conducted across the globe revealed that this highly contagious virus also causes eye symptoms in its early stages of infection with conjunctivitis being the most prevalent one in humans.[2]

Some of the common ocular manifestations of the coronavirus include dry eyes, redness, itching, pain, photophobia, and congested conjunctiva.[3] At times, these ocular manifestations are so subtle that the healthcare professionals might miss them. Multiple studies suggested that the eye symptoms were reported in the initial phases of the disease.[4,5] This study was conducted to highlight the importance of detecting ocular manifestations of COVID at an early stage which can help healthcare professionals to adopt safety measures more thoroughly.

METHODS

A cross-sectional observational study was conducted at Ophthalmology department of Pakistan Institute of Medical Sciences (PIMS), Islamabad. The study was approved by the Institutional Ethical Committee of PIMS, Islamabad. Informed consent was taken in written form from all of the participants of the study. There were 333 patients with laboratory-confirmed SARS-CoV-2 infection admitted in the hospital, from January 2021 to May 2021. All were older than 20 years and had no previous history of coronavirus infection. People with any pre-existing anterior segment pathology, pregnant females, and ICU-admitted patients were excluded from the study. The confidence interval was set as 95% with 10% absolute precision. PCR test and HRCT of chest were

performed to confirm the diagnosis. Eighty-one patients fulfilled the inclusion criteria. Data included age, gender, medical history, COVID status, HRCT for chest, eye symptoms with special emphasis on conjunctival condition were recorded in a self-designed proforma. Data was analyzed using SPSS 28.0.1.1. Quantitative variables like age and duration of illness were described as frequencies and percentages.

RESULTS

Out of 81 patients, there were 46 females and 35 males. Mean age was 44.05 ± 14.79 and mean duration of illness was 13.23 ±7.03. Further distribution based on positive PCR positive for coronavirus and HRCT for chest is shown in Table 1.

Table 1: *Distribution of patients based on gender, PCR and HRCT chest.*

Variable Gender	PCR Positive	HRCT Chest Suggestive of COVID-19
Male	25	10
Female	35	11

The patients with reported abnormal HRCT scans were > 25 years of age. The duration of illness for these patients ranged between 3 – 20 days. Frequency of patients who reported ocular features was 64.2% (n = 52). While 35.8% (n = 29) did not show any clinical signs or symptoms (p value = 0.001).

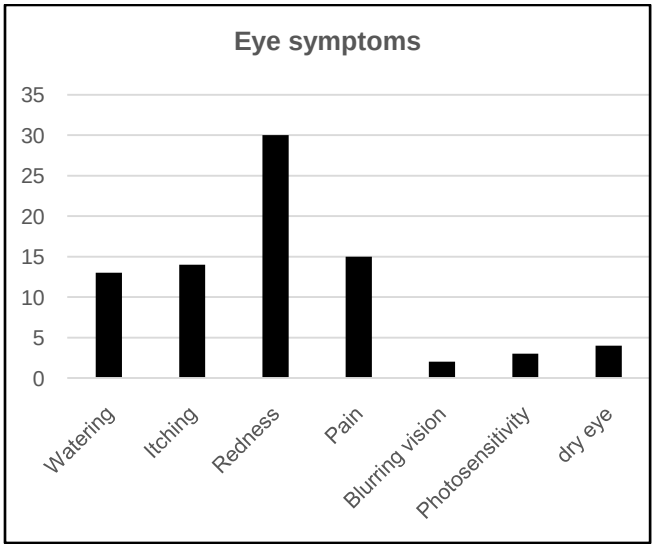

Figure 1: Ocular signs and symptoms in COVID-19 disease.

For the reported symptoms, the frequency of redness, pain, itching, and watering were the highest; 37, 18, 17, and 16 respectively. Whereas dry eye and photosensitivity, and blurring vision was reported in 5, 4, and 3 patients respectively. Frequency of the symptoms given as percent and cumulative percent showed a 100% eye symptoms observation in COVID-19 patients. The p value was 0.001.

DISCUSSION

Based on the current findings, it is important to wear eye protection to avoid spread of virus. Once the virus enters through the eye, it gains access to the respiratory tract via lacrimal passage. Respiratory tract infections have proven to be the most fatal in the COVID-19.[6] Treating patients with right approach in early stages of the disease is necessary as conjunctivitis due to COVID-19 can lead to a number of serious problems including breathlessness, probable shedding of virus in tears, fever, and cough.[7]

Ocular findings have been frequently reported in the COVID patients around the globe.[8,9]After performing chi square test on various factors including age, HRCT for chest, comorbidities, conjunctiva, and eye symptoms, it was deduced that only HRCT and conjunctiva had positive correlation (weak i.e., 0.132) with each other as evidenced by bivariate analysis. Another study reported the transfer of respiratory droplets from the infected persons to the ocular surface of the healthy individual.[10] From the eyes; it can spread to lungs causing respiratory manifestations at a later stage.

Conjunctival congestion has been previously reported in numerous studies.[11,12] More than six types of eye symptoms including dry eyes, itching, redness, watering, pain and photosensitivity were observed in the patients under study. Dry eyes being one of the initial COVID symptoms was also reported by patients.[13,14]

Limitation of this study was a cross sectional design without any comparison. However, it can be used to design further research on conjunctival swabs.

CONCLUSION

Ocular manifestations are one of the most common early symptoms of SARS-CoV-2 infection. It suggests that eyes are probable route through which the virus gains entry into the respiratory tract. This reiterates the

importance of using eye protection for healthcare workers.

Conflict of Interest: Authors declared no conflict of interest.

Ethical Approval

The study was approved by the Institutional review board/Ethical review board **(F.1-1/2015/ERB/SZABMU/735).**

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Authors' Designation andContribution

Nida Armoghan Khan; Resident:*Concepts, Design, Literature Search, Data Acquisition, Data Analysis, Statistical Analysis, Manuscript Review.*

Fahmina Nazir; Resident:*Concepts, Design, Literature Search, Data Acquisition, Statistical Analysis, Manuscript Preparation, Manuscript Review.*

Muhammad Awais Tahir; Resident: *Concepts, Literature Search, Data Acquisition, Manuscript Preparation, Manuscript Review.*

Hafiz Muhammad Jahanzaib: Postgraduate Resident: *Design, Literature Search, Data Acquisition, Data Analysis, Manuscript Editing.*

Sadia Nazir; Medical Officer: *Design, Literature Search, Data Acquisition, Manuscript Editing, Manuscript Review.*