Commentary: Impact of COVID-19 on ocular surface health

Dry eye is one of the most prevalent chronic ophthalmic conditions that adversely affects the quality and productivity of life.[1] Patients complaint of burning sensation, foreign body sensation or grittiness, photophobia watering, and blurry vision leading to significant difficulties in carrying out daily routine activities. The condition is multifactorial, chronic and is characterized by a vicious cycle of ocular surface inflammation and its adverse effect on ocular surface health.[2] As we may have observed, the flow of patients suffering from this condition is ever increasing in our practice; thus, to estimate the true prevalence of this condition from a population-based study is the need of the hour. With the advent of novel coronavirus 2019 (COVID-19) global pandemic, the situation has only worsened.

Over 50 million people across the world and close to 8.9 million people in India have been afflicted by the COVID-19 till date.[3] The pandemic has ushered in a way of life that has led people to spend most of their time indoors while still carrying out their work and education through visual display terminal (VDT). Concepts such as work from home and online classes have become the new norm and as definitive cure or vaccine are still eluding us; this novel way of life is likely to persist. Screen time has replaced the time which was otherwise spent doing outdoor activities leading to an increase in ocular symptomatology particularly dry eye disease (DED).

In a questionnaire-based survey conducted by a teaching hospital in Italy in COVID era, 24.3% respondents reported having used VDT in the last month for >6 h daily, while 67.3% reported to have worn face mask >6 h daily.[4] A percentage of 10.3 of subjects described appearance or worsening of ocular discomfort symptoms, and 19.6% reported the need for daily

use of tear substitutes.[4] The mean score of Ocular Surface Disease Index was 21, and 57% of the subjects scored ≥15 which is pathological.[4] Similarly in another study, deterioration in corneal staining and distinct increase in dryness was reported by cataract patients on postoperative day 1.[5] In a hospital-based study including 24.53% of doctors and 75.47% of nurses, it was found that the average time spent by them on computer and smartphone was 6.62 ± 0.49 h/day. A percentage of 35.84 subjects experienced dry eye symptoms (DES), among which 24.52% had mild, 7.54% had moderate, and 3.77% subjects had severe DES.[6]

Additionally, studies published in COVID era state the potential deleterious effect of wearing masks on the ocular surface. Incorrect fitting and displacement of mask have been hypothesized to disperse air around the eyes, and the air leaking could cause rapid evaporation of tears. This is similar to continuous positive airway pressure (CPAP) therapy which is associated with increase in ocular irritation, tear evaporation, and has been reported to cause squamous metaplasia in the conjunctiva.[7] The tear film which is an essential barrier against pathogenic invasion has been reported to be compromised with mask use as increased airflow blowing upward from the mask into the eyes accelerates the evaporation of tear film. Moreover, frequent eye touching due to uncomfortable feeling air blowing in the eyes from face mask increases the risk of virus transmission. It has also been postulated that the tape adhering to the skin of the upper cheek may interfere with the normal excursion of the lower eyelid, possibly inducing mechanical ectropion with secondary lagophthalmos.[7]

In addition to DED, increased use of VDTs especially in children has introduced the term "quarantine myopia" in the ophthalmic world.[8] Increasing number of school-going children report visual disturbance and symptoms of asthenopia lately. The onus now lies on us, ophthalmologists, to take up the task of increasing awareness of this scenario and to educate the community about preventive measures that can be undertaken to circumvent disastrous sequelae of the global pandemic on ocular health. Measures such as maintaining at least an arm working distance while working on laptops and computers, using gadgets in natural or ambient light, maintaining ocular hygiene, using bigger fonts, following the 20–20–20 rule, home-based orthoptic exercises, frequent blinking and using trackers on smartphones which warn and guide the users in terms of appropriate lighting and duration of screen work must be popularized.

We congratulate the authors for their original work in carrying out a large population-based study that gives us an insight on the magnitude and distribution of DED in our country.[9] The study sheds light on the common risk factors and symptoms at presentation through a six-item questionnaire. In this study, redness of eyes has been reported to be the commonest symptoms and young- and middle-aged subjects reported greater number of symptoms as compared to the elderly. Female sex, smoking and use of VDT were some of the important risk factors associated with DED in their study.[9] With the changing scenario due to the global pandemic, it is inevitable that the situation will get worse. Hopefully, as we collectively tide over this calamity, we will also be successful in reviving the health of the ocular surface of our patients, on the other side.

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Access this article online

Quick Response Code:

Website: www.ijo.in

DOI: 10.4103/ijo.IJO_720_21

Cite this article as: Singh A, Acharya M, Sangwan VS. Commentary: Impact of COVID-19 on ocular surface health. Indian J Ophthalmol 2021;69:1066-7.