

Ophthalmological Practices in COVID Times

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Abstract: *The pandemic of 2019 novel corona virus disease also called as COVID 19 was started from Wuhan city of China. The outbreak mostly from Wuhan research virological lab. According to World Health Organization (WHO) report, in India COVID-19 was reported first time on January 30, 2020. Total infected cases worldwide were 8,16,15,324 with total death worldwide 1,781,396 till 29 Dec 2020. (Coronavirus Pandemic, COVID-19. Live World Map/Count/ You Tube) According to WHO report the pandemic affects mostly from people of United states of America, India, Brazil and Russia. In the following article we discuss briefly the role of ophthalmologist, how to prevent transmission, different ophthalmic manifestations, investigation of choice, primordials well as primary prevention in this pandemic era.*

Keywords: COVID 19, MERS, Ophthalmologist, Pandemic, PCR, PPE, SARS, WHO

1. Introduction

The upsurge of 2019 novel corona virus pandemic disaster (COVID-19) was started from Wuhan city of China on December 3, 2019 according to World Health Organization (WHO) article reference. In India COVID-19 pandemic was announce first time on January 30, 2020. Now this virus has spread across the world to become one of the most serious pandemics. Till 29 December, 2020 this virus has caused nearly 8,16,15,324 total positive infections cases and 17,81,396 deaths all over world.¹ Total recovered 5,73,83,752 and total active cases was 2,24,53,042. In India, the total number of confirmed COVID-19 cases has more than 1,02,24,797 out of which 1,48,190 deaths recorded and 98,06,767 have been recovered till 29 December, 2020.¹ Most affected mortality rate was 3,42,721 in United States out of 1,97,23,298 total active cases. (Coronavirus Pandemic Live World Map/Count/ You Tube)

Dr Li Wenliang a first Ophthalmologist living in Wuhan city was first saw COVID 19 patient present with a red eye like features similar to viral conjunctivitis. Dr Li Wenliang, first identified the epidemic and raised the initial alarms to the local authorities about this new virus and its dangers but he was falsely accused by the local security bureau for giving wrong statements. He died because of this virus. He thought, he was infected by an asymptomatic glaucoma patient.^{2,3}

In 2004 Yuen Ks et al. had reported about the clinical sign - symptoms of COVID 19 disease on eye check-up of severe acute respiratory syndrome (SARS) patients. Yuen Ks had screened 45 such patients and found common manifestations among patients treated with high dose of corticosteroids; the only positive finding was a raised IOP, which persisted even after discontinuation of the treatment. Since the COVID 19 virus is similar to the SARs virus.⁴

SARs and Middle East respiratory syndrome (MERS) as both of them are family of corona virus. Both have also been known to get transferred to surfaces and contamination can enter the human body by routes like nasal mucosa, ocular surfaces, oral mucosa.⁵

Corona virus is found to be transmitted mostly from human to human via aerosols by direct contact or by fine droplets reaching the mucous membranes of the mouth, nose or eyes. The body fluids and infectious droplets of a patient can find the eyes of a normal person as an entry point of the disease and vice versa from infected patients. Respiratory viruses are feasible purpose for ocular impediments.⁶

Tears are common risk for SARs / COVID 19 transmission. An exposure of naked eyes to virus can be a frequent source of infection. Viral RNA has also been found in conjunctival swab, tear film, nasal and oropharyngeal swabs, sputum, faeces samples and broncho-alveolar lavage fluid from infected patients.⁷

The virus mainly affects the respiratory system, clinical symptoms consist common cold, flue like symptoms, respiratory distress, arthralgia, myalgia, fever and vomiting. Which noted similar with MERS and SARS. Symptoms in the eyes were mostly red eyes, epiphora, increased secretion, mild hyperaemia with follicular reaction and glaucoma. Real time reverse transcriptase polymerase chain reactions on tears and conjunctival swab from patients of SARs/ COVID 19 is essential to diagnose virus load. Infection to Dr Li Wenliang from an asymptomatic glaucoma patient suggests that asymptomatic patient also dangerous source of spread.⁸ COVID 19 strain HCoV-NL63 was first diagnosed in a baby who presented with red eyes and bronchiolar infection. It was found in a study that out of 28 paediatric patients with infection by HCoV-NL63, as many as 17% had ophthalmic manifestations. Symptoms can occur as minimum two days maximum up to fourteen days.

2. Management

The main treatment aimed at decreasing the transmission in the community is by isolation or quarantine which breaks the chain of transmission leads to decreasing in number of cases in the certain population as well as country.

Topical steroids like Fluorometholone 0.1% - loteprednol, lubricants and antihistamine eye drops had safe limited role

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in mild to moderate cases. In severe cases their role was limited and it may be used with caution. Frequent hand washings with maintaining eye hygiene will decrease the viremia or load of pathogen. A secondary bacterial infection should be examined under slit lamp bio microscopy. Ocular surface should be looked after for abrasion or erosions. The use of protective goggles with covering the eye, and use of personal protective equipment (PPE) which decreases the viral transmission rate.⁹ Topical Ganciclovir 0.15% or Acyclovir 3% used in COVID 19 patients with ocular surface involvement.

Second drug prophylaxis which FDA approved for COVID 19 patients is hydroxychloroquine (HCQ). India has approved the use of HCQ for prophylaxis of asymptomatic health workers or confirmed COVID-19 cases, and asymptomatic house contacts of confirmed patients. The possibility of corneal vertex keratopathy, retinal toxicity called as bull's eye maculopathy cannot be neglected in such cases hence regular fundus examination by ophthalmologist is essential. The risk of SARs- COVID 19 infection mostly present in health workers, nurses, doctors, lab workers, community health care professional and so many health care's people with outdoor activity. In the face of being fully protected by gown as well as aprons as sheltered by suit and masked respirator, health worker was still adulterer by the virus with the first warning sign being bilateral or unilateral redness in eyes, watering, foreign body sensation and conjunctivitis. Associated with fever, arthralgia and respiratory distress an hours later. Health care office workers have been counselled to use eye shelter when they are in close proximity with patients. There is a disagreement over what accounts for an appropriate personal protective equipment for an eye surgeon to conduct ophthalmic examination, in context with glasses and masks. There have been occurrence of demise or mortality of an ophthalmologist and otolaryngologist in China and Italy, environmental virus contamination has increased awareness to favour mouth, eye and nose protection. Therefore, it has been forced obligatory by the Centre for Disease Control and Prevention (Govt of India), for all healthcare employee and patients to put on surgical masks to reduce asymptomatic communication. A report shows that 1700 health care workers have been infected by COVID 19 by respiratory or droplet route out of which six death including one eye surgeon. So, RT-PCR from tears, conjunctival secretions and nasal mucosa is most important in diagnosing RNA associated Corona virus. Due to death of eye surgeon and ENT surgeon in China the WHO decides awareness regarding nose, mouth as well as eye protection by using goggles and N 95 mask. Hence Centre for Disease Control and Prevention by Govt of India, apply the above rule for all health workers. Any patient with red eye, watering and follicular conjunctival reaction should be first seen by ophthalmologist.

There is invariably a possibility of a COVID 19 contaminated patient owns conjunctivitis to have a viral existence in his tear secretions or discharge so the area needs to be sanitized, once the patient departs from hospital or clinic. While performing as lit lamp bio microscopy, slit-lamp protection covers or shields are having been used by care givers. Careful hand washes or use hand sanitizer after

every patient examination which is must for eye surgeon. Ophthalmologist should avoid touching face, nose or eyes before a hand wash. Lubricant eye drops should be used more frequently as dry eyes can lead to more feeling of rubbing and itching. If there is an exposure to the eyes of the eye health worker, optometry staff, ophthalmic assistant or care giver, eyes may be washed by clean running water, warm water and make it dry.

3. Manuscript Category

Article Review

4. Manuscript presented in other meetings or conference

No

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6. Conflicts of interest

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