

Current Challenges and Solution of Ophthalmology during Covid-19: An evidence-based practice

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ABSTRACT

Background: The coronavirus 2019, also known as SARS-CoV-2, is highly contagious and spreads easily through respiratory droplets when an infected person coughs or sneezes. In December 2019 Wuhan China, the virus was first detected and has become a global pandemic.

Aim: To maintain an evidence-based ophthalmology practice during the Covid-19 pandemic, some strategies and guidelines that may be considered and to adapt their practices to the challenges presented by the Covid-19 pandemic while still maintaining evidence-based care.

Methods: This narrative review study was conducted in ophthalmology department of Akbar Niazi Teaching Hospital (ANTH), Islamabad between January and March 2023. Some guidelines during Covid-19 outbreak were discussed.

Results: Identifying and addressing challenges in different care settings is important for maintaining high-quality ophthalmology care during the Covid-19. Minimizing cross-infection of Covid-19 is essential in healthcare settings to protect both healthcare workers and patients. Stringent infection control measures with personal protective equipment (PPE) and routine cleaning of "high-touch" surfaces, are important strategies to reduce the risk of transmission. Implementing a stringent dual screening and triaging process is a crucial step for outpatient care during the Covid-19 pandemic. This helps to identify high-risk patients and provide appropriate care while minimizing the risk of transmission to other patients and healthcare workers. Separating inpatient and outpatient care is another important strategy to minimize interactions and reduce the risk of transmission of Covid-19. Planning logistics and manpower is critical during the Covid-19 pandemic to ensure that healthcare facilities have the necessary resources and staff to meet the needs of patients. The practical implication of this review was to develop strategies for safe routine eye care and surgery to maintain practice.

Conclusion: The measures implemented in response to the Covid-19 in ophthalmology clinics can serve as a guide for healthcare facilities facing similar disease outbreaks in the future.

Keywords: Challenges; Evidence-based practice; Ophthalmology; SARS-CoV-2.

INTRODUCTION

The first cases of COVID-19 were reported in Wuhan, China in December 2019. The disease is caused by the SARS-CoV-2 virus, the virus is highly contagious and can cause a range of symptoms, from mild to severe, including fever, cough, and difficulty breathing.¹ In early stages of Covid-19 pandemic, there were reports of ocular manifestations of the disease, including conjunctivitis². Studies have found that the virus can infect the conjunctiva, and some Covid-19 patients have presented with symptoms such as eye redness, irritation, and discharge³. More recent reports have also suggested that Covid-19 may be associated with other ocular manifestations, such as uveitis, retinovascular disease, and neuro-ophthalmic disease⁴.

The World Health Organization (WHO) declared Covid-19 as a Public Health Emergency of International Concern (PHEIC) on January 30, 2020. This was due to the rapid spread of the disease outside of China⁵. Covid-19 is primarily spread through droplets, fomites, fecal-oral root, and tears⁶. There have been reports of Covid-19 virus being detected in tears and conjunctival secretions of infected patients with conjunctivitis, which suggests that there may be a risk of transmission of the virus in ophthalmology departments⁷.

Covid-19 typically presents with a wide range of clinical manifestations, the majority of cases, approximately 85%, have mild to moderate disease with symptoms such as fever (90%), cough (70%), fatigue (40%) and 16.7% conjunctival congestion⁸.

Pakistan reported its first confirmed case of Covid-19 in February 2020. Since then, Pakistan has applied a range of measures to control the spread of the virus, including travel

advisories and entry restrictions for travelers from high-risk countries, such as China, the United Kingdom, and the United States⁹. As of April 2023, Pakistan has reported over 1.3 million confirmed Covid-19 cases and over 29 thousand deaths, according to data of WHO¹⁰. Covid-19 has affected 199 countries and territories worldwide, several countries, including Italy, the United States, Spain, Germany, and Iran, were among the early hotspots of the pandemic, with high incidence rates and significant impacts on their healthcare systems¹¹.

The rationale of this study was to understand the impact of Covid-19 on healthcare professionals practice and to develop effective infection control measures to protect both patients and staff. By sharing their experiences and strategies for maintaining an evidence-based ophthalmology practice during the pandemic, the authors of the study may be able to provide guidance and support for other ophthalmologists facing similar challenges.

METHODOLOGY

Akbar Niazi Teaching Hospital (ANTH) is a tertiary care hospital in Islamabad and Ophthalmology department is the busiest outpatient department in ANTH. The routine use of reusable equipment in close contact with patients and high-touch surfaces in ophthalmology practice presents a unique challenge in the prevention of Covid-19 transmission. The high load of 50 patients per day in ANTH Ophthalmology department further exacerbates the risk of transmission, as patients may potentially come into contact with each other and with healthcare workers who are using the same equipment and surfaces. Some examples are slit lamp, Goldmann applanation tonometer (GAT) heads, eye drops, chin-rests, contact lenses, and table surfaces diagnostic devices like optical coherence tomography and Humphrey visual field.

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ANTH Eye department outpatient visits' weekly rate has significantly from 20%-40%, during Covid-19 outbreak. Some patients may be afraid of contracting Covid-19 and prefer to delay their visits to the hospital, while some hospitals and clinics have also reduced the number of outpatient visits to minimize the risk of transmission. Delay in follow-up appointments and treatment can lead to progression of glaucoma and other vision-threatening conditions, which can result in permanent vision loss.

The Ophthalmology Department of ANTH only admits inpatient transfers from general ward. It is important to implement infection control measures to prevent cross-infection in such scenarios. One strategy is to establish separate entrances, exits, waiting areas, and examination rooms for inpatients and outpatients.

Surgical procedures, average 30-40 patients/day, often require close contact between patients and healthcare workers, with the possibility of exposure to bodily fluids and aerosols. As such, there is a higher risk of cross-infection between patients and healthcare professionals from different wards or clinics during surgical procedures.

Covid-19 can cause conjunctivitis, and it is important to take precautions against transmission through aerosol contact with the conjunctiva, as well as other potential routes of transmission¹². Additionally, it is possible for patients to be infectious even before they exhibit symptoms.¹³Ophthalmologists are at an increased risk of contracting Covid-19 because they are in close proximity to a patient's face, particularly their nose and mouth, and may be exposed to tears that can potentially contain the virus.¹⁴Recommendations of American Academy of Ophthalmology (AAO) for ophthalmologists to wear PPE such as masks, gloves, gowns, and eye protectors when caring of patients¹⁵.

Challenges Affecting Practice of Ophthalmology:

<p>Control of Infection</p> <ul style="list-style-type: none"> - Risk of infection transmission - Routine practice of reusable equipment - Examples contact lenses, slit lamp, chin-rests, eye drops 	<p>Surgery</p> <ul style="list-style-type: none"> - Surgical load, 30-40 patients - Surgical cross-infection between patients - Surgical cross-infection between health professionals of different hospitals
<p>Care of OPD & IPD</p> <ul style="list-style-type: none"> - Outpatient visits 20%-40% - Reasons include postpone follow-up visits to avoid hospitals - Referral patients from general ward - Movement of ophthalmologists in different IPD's wards 	<p>Healthcare Professionals</p> <ul style="list-style-type: none"> - Covid-19 infection manifestations - More risk of Covid-19 - Follows the American Academy of Ophthalmology (AAO), guidelines

<p>General Infection Control</p> <ul style="list-style-type: none"> - Routine equipment cleaning - Used antiseptics-disinfectants combination of chlorhexidine with ethanol and cetrimideor povidone-iodine - Used antiseptics-disinfectants for handwash 	<p>Surgery</p> <ul style="list-style-type: none"> - Many healthcare facilities have postponed non-emergency elective cases to reduce the caseload and potential infection risks for both patients and healthcare professionals - Screening for cough and fever during pre-operative assessment
<p>Care of OPD & IPD</p> <ul style="list-style-type: none"> - Patient's training against infection transmission - Screening and triaging process - At entrance of the hospital, patient's temperature is checked by thermal image cameras - Separating inpatient and outpatient ophthalmology care 	<p>Healthcare Professionals</p> <ul style="list-style-type: none"> - PPE used when intubating patients - Protective eyewear - Used visor masks or cover specs over the use of goggles - Increasing the working distance from the operating microscope can affect visualization during surgery

Routine screening of all patients (IPD & OPD) was performed as following; acute respiratory illness (e.g., cough/runny nose, fever ≥

38°C, shortness of breath, pneumonia and diarrhea), travel history and close contact to affected patients with Covid-19. Action to be taken in ANTH as; allow entry and give surgical mask, inform attending doctor, bring patient to procedure room, eye atrium and call for treatment.

Ophthalmology Practice Guidelines: The treatment for Covid-19 is mainly supportive, including measures to manage symptoms such as fever and cough. Vaccines have been developed and are being rolled out globally, but the Covid-19 iscontinuing challenge for healthcare professionals.¹⁶Covid-19 outbreak has a significant effect on healthcare professionals, including ophthalmologists, who are facing increased physical, mental, and social stressors due to concerns about patient and personal safety.¹⁷ Additionally, strategies developed to enhance communication with patients and the public about the importance of following infection control measures to reduce the spread of Covid-19.

DISCUSSION

Covid-19 has created a global demand for PPE¹⁸. The government of Pakistan had a 6-month national stocked of PPE and masks for a crisis during the Covid-19, and while stockpiles available to healthcare facilities are a priority, clinic managers should review them now, supply and think about sustainable recycling strategies. In our hospital, every healthcare professional is allocated 1 surgical mask/day, which was signed out, reduce wastage, and confirm the proper use.

Screening required the redirection of staff from their normal duties, which can cause strain on the resources of the hospital or clinic. While, ophthalmologists needed to provision other departments e.g., emergency departments and inpatient that were already under significant strain due to the entry of patients. Extraordinary community group outbreaks can lead to sudden surges of patients and place significant strain on hospitals and clinics¹⁹. In such situations, contingency planning and forethought become even more critical to ensure that the healthcare system can respond effectively and efficiently. To achieve this, our department is targeting overstaffing to ensure the elasticity of various labor demands during this crisis.

In addition to providing PPE, all healthcare workers should receive refresher training on how to don and remove PPE to reduce the risk of infection. It is important to note that N95 masks should not be reused or reprocessed for single use. Instead, they should be discarded after each use to minimize the risk of infection.²⁰ Instead of PPE demonstrations, healthcare facilities can distribute online training materials and videos to avoid mass gathering of employees and minimize the risk of Covid-19 transmission. Education about the importance of PPE is crucial to ensure that healthcare workers understand the need for using PPE and the role it plays in preventing the spread of Covid-19²¹.

To increase the protection of all healthcare workers, consideration may be given to updating the influenza vaccine to the seasonal strain. While the flu shot does not provide protection against Covid-19, it can avoid the necessary quarantine measures and avoid false alarms by the warming team due to the strain being spread among the staff²¹.

Methods to reduce the spread of influenza in the workplace can be adapted for Covid-19. Social distancing measures in the workplace have previously been studied to prevent the spread of influenza²². Practical measures to achieve this is to limit the size of group meetings and events with lectures and video conferences. At lunch time, the common staff area can have chairs and chairs at a distance (so 2m).

Health workers during the Covid-19 pandemic are crucial to maintaining their well-being and ensuring high-quality patient care²³. The prolonged uncertainty and stress associated with the pandemic can take a toll on the mental and physical health of healthcare workers, and it is important to provide support to help them cope with these challenges²⁴. Conducting a workplace health survey is an excellent way for healthcare leaders in ophthalmology

to understand the challenges faced by workers in the workplace during the Covid-19. There are several other ways that hospital administrators can explore to understand how to support their staff during the Covid-19. One way that hospital administrators can support their staff during the Covid-19 pandemic is by creating employee-led committees or task forces to address specific issues or concerns. Stress and frustration levels can then be safely identified and health interventions can be planned and implemented.

CONCLUSION

We have discussed important considerations for healthcare leaders in ophthalmology during the Covid-19 crisis. In the short term, the focus should be on infection control to protect healthcare workers and patients during the Covid-19 crisis. In the long term, it is important to develop strategies for safe routine eye care and surgery to maintain practice. The goal is maintaining public trust and safe access to routine and emergency eye care is crucial during a disease outbreak like Covid-19.

Conflict of interest: Nil

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