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Brief Communication

Challenges and Future Implications for Ophthalmologists in COVID-19 Environment

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ABSTRACT

In this brief communication, we have highlighted the challenges confronted by Ophthalmologists during COVID-19 pandemic and formulated steps to develop a comprehensive strategy towards minimizing risk of infection transmission between health care workers and patients. To reduce the risk of cross infection, screening and triaging of the patients was done at very initial stage with only high risk patients (red category) were seen directly on slit lamp biomicroscope with PPE. Green and yellow category (low risk) patients were seen via teaching aids or LCDS and telemedicine methods. Elective surgeries were postponed. Less number of attendants were allowed with the patients. Continued teaching services for undergraduate and post graduate students were done by online methods like zoom or Microsoft teams meeting. Departmental meetings were planned via video conferencing (zoom or Microsoft teams). Recommendations are made in this article to ensure safe access to specialized health care in face of COVID-19 pandemic.

Key Words: COVID-19, Personal Protective Equipment, Ophthalmologists, Pandemic, Health care workers.

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INTRODUCTION

COVID-19 has spread globally and in Pakistan, the first case was reported in Karachi on February 26th, 2020. Since then the virus had spread across all regions thus becoming an epidemic.[1]

Human to human transmission occurs mainly through respiratory droplets and less likely from tears as well as conjunctival secretions of infected patients.[2] As ocular secretions of symptomatic as well as asymptomatic patients harbor active virus, it is apparent that ophthalmologists are particularly at risk.[3]

Centers for Disease Control (CDC) defines close contact as less than 2 meters (within 6 feet) from an infected patient for a prolonged duration.[4] Risk to ophthalmologists is significantly enhanced due to close vicinity to patients during examination, vulnerability to droplet transmissions from tears, conjunctival secretions and the necessary physical contact with patients' eyes.[5] On 7th February, Dr Li, an Ophthalmologist at Wuhan died of acquiring novel Corona virus while Dr. Li warned his colleagues that they should wear personal protective equipment. Two other ophthalmologists from the Central Hospital of Wuhan, had also passed away from this virus highlighting the challenges faced by ophthalmologists in this pandemic.[5]

Holy family hospital is one of the largest public sector hospitals in twin cities and it is also the main screening and management center for Covid-19 patients in Rawalpindi. Crowded OPD with average of 500 out-patients per day, difficulty in maintaining appropriate physical distance owing to slit lamp

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examination and direct fundoscopy, doing other prolonged outpatient laser procedures like YAG capsulotomy and Argon laser photocoagulation, visit to other wards including Covid-19 isolation wards to attend emergency cases and most importantly non-adherence of general population to recommended preventive measures were the challenges. As major proportion of eye clinic patients are elderly with multiple comorbidities, attendants cannot be prevented from accompanying them. Reducing the volume of clinics was done with one patient at a time; patient advised to come alone or only one support attendant to avoid overcrowding at waiting places. With high volume clinics, aerosol transmission is increased due to prolonged exposure to the high concentrations of droplets in relatively closed environments. Therefore, proper ventilation of room was made mandatory.

It is recommended by American academy of ophthalmology to protect eyes along with mouth and nose while dealing Covid-19 infected or suspected patients.[6] Typical protocol for all clinical staff was wearing of surgical masks and protective goggles or face shields to avoid inadvertent exposure of health care workers to asymptomatic cases of Covid-19.

Ophthalmology practice is exclusive as it involves frequent use of high touch equipments and surfaces. A-scan, B-scan, Goldman Applanation tonometer, fundus contact lenses, eye drop bottles, forehead and chin rests and other diagnostic procedures require contact with conjunctival and ocular secretions directly or indirectly. All these frequently touched surfaces serve as hot-beds making them potential source of iatrogenic infection transfer.[7] Aerosol generating procedures such as non-contact tonometry should be avoided. Cleaning and disinfection of the equipment and frequently touched surfaces should be done with Alcohol based solutions, 70% ethanol or isopropanol or diluted bleach.[7] Ophthalmic consultation also requires multiple investigations which include visual acuity testing, IOP measurements, pupillary dilation and fundus evaluation which leads to prolonged stay of patient leading to increased risk of cross infection. Ophthalmologists need to practice social distancing along with wearing PPE and surgical masks.

In outpatient department, effective screening and triage should be done according to complaints. Red category patients are high risk requiring face to face examination such as open globe injuries, lid lacerations, blunt trauma, acute angle closure glaucoma, neovascular glaucoma, retinal detachment, acute corneal hydrops and keratitis. These cases were directly dealt by ophthalmologists on slit lamp. Yellow and green category patients are intermediate and low risk with refractive errors, cataracts, open angle glaucoma patients with controlled IOPs stable diabetic retinopathy and conjunctivitis. These were re-scheduled and provided telemedicine care.

History of travel or contact with Covid-19 case and upper respiratory tract infection were ruled out at OPD counter. Those who were cleared were again triaged at Out-patient registration counter according to their complaints. Those patients who were positive for any of above criteria were labelled as suspected cases and sent to separate room and were reassessed for need of urgent consultation or not. If needed, they were examined by ophthalmologist with proper PPE donning and were advised isolation protocols. Direct ophthalmic consultations were only for red category. At filter clinics, run by senior doctors, follow-up of patients were dealt with and medications were advised to the yellow and green category patients. Our out-patient influx was significantly reduced to half during this period. The department was providing them telemedicine care via WhatsApp, Skype calls or hospital administration.

Cross infection was avoided by little interaction of Indoor and Outdoor patients. Indoor patients were examined only at bed side and if they required specific investigations from diagnostic equipment at Out-patient area, they were kept in separate room. Interdisciplinary referral from different departments were given separate timeframes to minimize the risk of cross infection.

Procedures done under general anesthesia require endotracheal intubation and manual ventilation, these are aerosol generating procedures posing the health care workers to acquiring respiratory tract infections[8]. Therefore, only emergency procedures requiring intubation were performed and elective general anesthesia procedures were postponed and rescheduled by administrative section and unit receptionists[9]. Elective general anesthesia procedures were only performed if Covid-PCR was negative. Daily surgeries rate was reduced to almost 60%.

For surgical procedures such as Probing and syringing along with Dacryocystorhinostomy, wearing of face masks N95 along with goggles and face shields was mandatory. Anterior segment surgeries like

cataract and posterior segment vitreoretinal procedures utilizing phacoemulsification probe and high-speed vitrectomy cutters are all aerosol generating procedures. Hence, eye protection via protective goggles, face shields and filtering face piece with 3 respirators were recommended for surgeons and assistant staffs.

Masks with better filter efficacy, surgical/latex gloves, face shields, disposable gowns coveralls, eye protective goggles and slit lamp guards/shields are recommended personal protective equipment for ophthalmologist.[8] We also recommend use of mask for all patients and their attendants visiting out patients departments.

Protection against virus is even more complicated due to difficulty to use protective equipment including face shields and goggles during procedures on slit lamp and microscope because of fogging and depth perception issues.

High turnover of patients in clinics was managed by putting cross marks on every alternate seat in patient waiting areas and marking circles on floor for safe distance queuing of patients.

Morning meetings and department sessions were cancelled.[10] Indoor clinical rounds were limited to average of 4 – 5 persons. Seating was distanced and tea times were segregated. Video conferencing zoom or Microsoft teams were used for monthly departmental meetings.

Undergraduate and postgraduate teachings including class lectures and clinical classes were continued via Microsoft teams meetings. Online clinical ward tests and monthly theory tests were planned according to Microsoft forms software with fair continuation of educational activities. Virtual conferences and webinars were planned by Institution for continuing learning throughout the pandemic. Departmental communication was continued through WhatsApp groups and emails. This allowed propagation of important information at larger groups.

In addition to all this, there were lots of psychological stresses faced by health care workers due to this pandemic hence immediate psychologists' referral along with psychiatric consultations were planned for counseling sessions and stress coping therapies.[11] Furthermore, self-help methods to reduce stresses were practiced.

In current pandemic of Covid-19, imperative contemplations were described for ophthalmologists in this article. Initial importance was given to reduce infection transmission and to protect both patients and healthcare workers. Long term strategies for sustainable clinical and surgical eye health care and teaching services were devised. The aim was to maintain safe access to eye care while preventing the disease outbreak.

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Authors' Designation and Contribution

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