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Ophthalmology and Ethics in the COVID-19 Era

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• PURPOSE: **The novel coronavirus, SARS-CoV-2 (COVID-19), has disrupted the practice of ophthalmology and threatens to forever alter how we care for our patients. Physicians across the country encounter unique clinical dilemmas daily. This paper presents a curated set of ethical dilemmas facing ophthalmologists both during and following the pandemic.**

• DESIGN: **Perspective.**

• METHODS: **Case presentations drawn from actual clinical scenarios were presented during a virtual ophthalmology grand rounds and discussed with the director of clinical ethics at Columbia University Irving Medical Center.**

• RESULTS: **It has become routine to expect an ophthalmologist to be involved in many levels of care for patients critically ill with COVID-19. Ophthalmology patients, even those with chronic, progressive conditions, are being triaged, and vision-saving interventions are being postponed. Four questions were applied to each scenario, allowing for ethical conclusions to be reached. The following questions were posed: what is the imminence and severity of the harm expected without intervention? What is the efficacy of the intervention under consideration? What are the risks of treatment for the patient? What are the risks of treating the patient for the health care team?**

• CONCLUSIONS: **During this pandemic and for months, perhaps years, to come, it is critical to reconsider the ethical principles underlying modern medicine and ophthalmic care as well as the ramifications of our decisions and actions. (Am J Ophthalmol 2021;224: 158–162. © 2020 Published by Elsevier Inc.)**

FOR THE LAST SEVERAL MONTHS, AND CONTINUING for the indefinite future, the novel coronavirus SARS-CoV-2 (COVID-19) has interrupted virtually every aspect of medical care around the world. From the very beginning of the pandemic, ophthalmologists have played a unique role. The first physician to sound the alarm about COVID-19 causing human disease was the courageous ophthalmologist Lin Wenliang, MD, in Wuhan, China.[1] Tragically, he succumbed to the disease just weeks afterward, heightening concern within the ophthalmic community. Since then, multiple reports have suggested that ophthalmologists may be at particular risk of infection, perhaps due to proximity to patients, large numbers of patient interactions, spread through contact with infected secretions, or the variable use of personal protective equipment.[2,3] Regardless of the reason, ophthalmology practices across the country promptly postponed great numbers of patient visits and delayed nearly all elective surgeries, often following official mandates from local or federal agencies.[4,5] With this catastrophic upheaval, the conventional practice of ophthalmology has transiently succumbed to the COVID-19 epidemic, and normal standards of care have been disrupted.[6]

In this new COVID-19 era, the day-to-day ethical foundations of ophthalmic practice have been challenged. An expansion of intensive COVID care safety practices and the parallel collapse of routine ophthalmologic practice have required us to recall and apply the guiding ethical principles of medicine. Dr. Kenneth Prager, a pulmonologist by training, routinely discusses ethical dilemmas related to ophthalmic care during our annual educational platform within the department of ophthalmology at Columbia University. Dr. Prager, Chairman of the Medical Ethics Committee and Director of Clinical Ethics at Columbia University Irving Medical Center, serves as counsel for cases that perplex faculty and trainees. On this occasion, we posed 4 case studies to Dr. Prager. Each case scenario represents a current concern and is related to the COVID-19 pandemic.

CASE 1: A COVID-19-POSITIVE PATIENT IN NEED OF URGENT SURGICAL INTERVENTION

A 65-YEAR-OLD WOMAN WITH A HISTORY OF HIGH MYOPIA presents with a macula-on retinal detachment. She tested positive for COVID-19 yesterday, after experiencing several days of throat soreness and low-grade fever. Her longstanding retina specialist is 70 years old.

• QUESTIONS: How do we balance the risk of surgical delay with the potential risk of exacerbation of the patient's illness from anesthesia, as well as the risk of infecting the

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health care team? Who should operate, her physician or a younger colleague?

• **ETHICIST'S RESPONSE:** A favorite ethical mantra is that the ethics flow from the facts. There are 4 questions that need to be addressed in each case:

• **WHAT IS THE IMMINENCE AND SEVERITY OF THE HARM EXPECTED WITHOUT INTERVENTION?:** There is a spectrum of diseases that confront the patient and physician. At one extreme of the spectrum is the patient presenting with a life-threatening emergency, for example, acute peritonitis, which will cause death without immediate surgery. You must operate. On the other end of the spectrum is the patient who needs a total knee replacement. The patient may be crippled without surgery and may have pain, but the patient will not die from it, and this would not justify using scarce resources and personnel during the COVID-19 epidemic. A patient with operable, nonmetastatic lung cancer lies in the middle of the spectrum. At what point have we lost the opportunity to perform a curative lobectomy?

• **WHAT IS THE EFFICACY OF THE INTERVENTION UNDER CONSIDERATION?:** One could consider treatment for cancer. Does the treatment offer a 3% likelihood of 5-year survival or a 95% likelihood of 5-year survival? The greater the efficacy, the greater the ethical justification to pursue the intervention.

• **WHAT ARE THE RISKS OF TREATMENT FOR THE PATIENT?:** Risks to the patient include more than the typical surgical discussion. What is the risk to the patient if he or she becomes infected with COVID-19 in the treatment setting? If the patient is an otherwise healthy 30-year-old, those risks are low. If the patient is a 75-year-old with chronic obstructive pulmonary disease (COPD) or chronic lymphocytic leukemia, the risks are significantly higher.

• **WHAT ARE THE RISKS OF TREATING THE PATIENT FOR THE HEALTH CARE TEAM?:** These risks vary depending upon the medical issues relating to a specific patient with COVID-19 positivity. Is the treatment benefit to the patient commensurate with the potential risks of exposure to the clinical and, say, janitorial staff? These risks are not trivial, and health care team members could die.

In this particular case, the retinal detachment would benefit from intervention sooner rather than later. While the delay is not fatal, it could cause a significant, permanent decrease in visual acuity. The efficacy of treatment is high, and the standard of care is to operate, but what is the risk to this COVID-19-positive patient? If this patient did have COPD, is the risk of anesthesia in the midst of a COVID-19 infection increased? An anesthesiology preoperative evaluation here would be key.

As for the risk to the health care team, there are a number of people who would be involved in the team caring for this patient throughout the pre-operative, operative, and post-operative course. Everyone would be wearing personal protective equipment (PPE), but when PPE is limited, there needs to be a justification for the use of PPE by multiple people. Should this case require intubation, this intervention would significantly increase the risk of exposure and infection for the health care team due to aerosolization of the virus. The operating room at our ambulatory surgical center, which is a positive-pressure room without negative pressure capacity, contributes to this risk.

Finally, there is the question of risk for this 70-year-old surgeon. We know that the prognosis of COVID-19 infection worsens with each decade of life. I think this is a decision the surgeon should make for herself. If the surgeon feels uncomfortable, it is not unethical to recuse oneself, as long as the surgical outcome is expected to be similar if performed by the younger colleague. However, if the surgeon feels the risk is not prohibitive with appropriate PPE, that would also be a reasonable decision.

In sum, the key issues in this case are the risk to the patient, who is COVID-19-positive, and the risk to the health care team. What would be the impact on the patient of delay and loss of vision? If this were an airplane pilot and the loss of vision would end the patient's career, that would need to be weighed in the ethical balance. Conversely, if a delay may not influence the patient's life in a meaningful manner, given the risk of surgery for a specific patient with unique risk factors and even the possible risk of intubation, the balance may be swayed toward delaying surgery. If the risk of surgery to the patient was acceptable despite COVID-19 positivity and the risk to health care workers was not prohibitive, it would be reasonable to proceed, as the surgery would preserve vision and is clearly the standard of care. Each case needs an individual risk-benefit analysis.

CASE 2: POTENTIAL VISUAL COST OF POSTPONED ELECTIVE SURGERY

A 73-YEAR-OLD MONOCULAR MALE WITH GLAUCOMA AND known progressive visual field loss had trabeculectomy surgery scheduled for the end of March. Surgery was postponed due to the COVID-19 outbreak and the city-wide cessation of elective surgery. The patient remains well and is willing to have surgery.

• **QUESTIONS:** In an effort to screen for continued visual decline, is it reasonable to perform perimetry using a device that cannot be fully sterilized? What are the ethical ramifications of further delaying surgery in this monocular patient, given the risk of a patient becoming infected in the hospital setting?

Because trabeculectomy surgery typically requires multiple visits in the post-operative period, is it ethical to change the surgical plan (ie, to the placement of a tube) in order to

allow for fewer visits even if the new plan may not be as effective?

• **ETHICIST'S RESPONSE:** A key question before proceeding with the decision of whether or not to operate is whether the patient is an asymptomatic COVID-19 patient. Insisting on pre-operative COVID-19 diagnostic testing is a must, even though the test is imperfect, as the result would impact the timing of surgery significantly. The test must be performed in a trusted location, such as the hospital or other certified laboratory. Because this is not an emergency surgery, if the patient were COVID-19-positive, there would be no question that the surgery should be postponed until he converted to COVID-19-negativity or the risk of illness had passed.

Now, using our 4 principles as outlined in the first case, we can begin to weigh the ethical issues before proceeding. There is certainly not the same imminence of harm as in the first case, and the rate of progression is presumably on the scale of many months, rather than days. However, the severity of harm to this patient is far greater than in the first case, as he is monocular.

Let's assume the surgery has high efficacy. We would then continue by assessing the risk to the patient of having surgery. This is a 73-year-old patients, presumably a COVID-19-negative gentleman. The risk of exposure to COVID-19 in the operative setting, and subsequent infection changes the conversation. One would need to discuss the potential loss of life due to COVID-19 infection as part of the risks of surgery. This is, therefore, a more complex discussion than usual for this procedure. If it were believed that surgery was appropriate even now given the unclear timeline for the COVID-19 pandemic resolution, one would need to have a detailed informed consent discussion with the patient, emphasizing that the staff would do everything possible to minimize the risk of COVID-19 transmission but that the risks of infection could not be entirely eliminated. The patient's age is a risk factor in and of itself. Does he have significant comorbidities, such as severe COPD? The risk of transmission to health care workers is negligible, assuming one knew the patient did not have COVID-19 infection.

Assuming one was inclined to postpone surgery, one would only obtain perimetry if it were felt that the results of the test would significantly impact the decision to operate. If the surgeon were unsure of the need to operate but was looking for measures to help inform this decision in the setting of a patient at high risk of morbidity with COVID-19 infection, obtaining perimetry would well be worth it. However, if the patient is at very high risk of morbidity and mortality with COVID-19 infection, it is probably appropriate to risk progression of glaucoma rather than risk exposing the patient to COVID-19 by having him come to the hospital for perimetry evaluation and possibly surgery. Hopefully, new sterilization procedures for ophthalmic devices will be proven to mitigate the risks of diagnostic testing moving forward.

We need to consider the issue of multiple visits, whether for multiple pre-operative visits or for post-operative care. Each visit is a risk for COVID-19 transmission, and we do not know how long it will take for the risk to decrease. Implementing policies and procedures to lessen both the number of and time spent in visits are within the purview of the surgeon.

The question of choosing a different, possibly less effective, surgical procedure that would require far fewer follow-up visits requires a discussion with the patient. The need to return weekly and risk repeat exposure may weigh into this decision; on the other hand, if the risk of transmission could be minimized, the surgeon and the patient may find repeat examinations acceptable. This is the kind of case where one needs to have a long, informed consent discussion with the patient. It is a nuanced conversation and a joint decision. Two patients may have different responses to the same conversation, and both may be reasonable. There is no black and white answer here, just a weighing of the risks. A clear, appropriate decision may be arrived at in a particular case only when all the variables are weighed. The questions listed must be asked and answered, and in doing so, the appropriate, safest, most ethical manner of proceeding should become clear.

CASE 3: RESCHEDULING OF PATIENTS FOR POSTPONED APPOINTMENTS

A 45-YEAR-OLD MALE WITH TYPE 1 DIABETES MELLITUS, A history of stable proliferative diabetic retinopathy, and no acute visual complaints was scheduled for his routine 6-month visit in mid-March. The visit was postponed, and appointments were limited for at least 3 months.

• **QUESTIONS:** What are the ethical considerations of patient prioritization in a phased reopening with limited appointment schedules? How does a physician risk-stratify in the setting of limited information (ie, the patient's retinal status, the future availability of COVID-19 testing, the prevalence of COVID-19 in the community, and the presumed risk of infection)?

• **ETHICIST'S RESPONSE:** This case brings up the question of triage. Ophthalmology practices see large numbers of patients, and for the foreseeable future, there will be few appointment slots available in many ophthalmologists' offices. The moral imperative is for the people who staff a clinic to review each patient and perform triage according to imminence and severity of harm for each patient whose appointment will be delayed. If there is a patient whose vision would be at risk with a delayed appointment and another patient with vision problems that are stable, the ethical choice is apparent. The ethically appropriate thing

to do is to triage. It may be logistically difficult and time consuming, but that is what is ethically appropriate.

To that end, how does one justify the risk? As part of the COVID pandemic preparation, one author (K.M.P.) was involved with creating a ventilator triage policy, given the threat of ventilator shortages. Approaches such as the SOFA (Sequential Organ Failure Assessment) score were considered policies were developed. Thankfully, an official ventilator triage policy was not implemented in New York City at the time of this writing, despite the tremendous surge of critically ill patients in April, but the process of treating these patients required the development of risk stratification strategies and of objective evaluation parameters. Obviously, the input variables of any such policy should only relate to the medical (in this case ophthalmological) factors involved and nothing else, such as insurance coverage, wealth, race, or psychosocial factors. There should be a level playing field. Thus, using scoring criteria plus clinical judgment would be the most ethical approach to prioritizing patients for medical interventions, or in this case, for clinic appointments.

While an objective scoring tool for assessing the ophthalmic patient may not exist, the approach should be the same. Risk stratification based on what is known about a patient's ophthalmic status is required. Admittedly, doing this for thousands of patients in a busy practice is a daunting task. Each patient's record would require a brief evaluation of risk for a delayed appointment. Patients should also be contacted to ask for their subjective evaluation of their vision as part of this critical assessment; subjective visual change would be used to establish priority for appointments. Understandably, this could be harder in some cases than in others. For example, a patient with glaucoma would likely be unaware of either their intraocular pressure or their peripheral vision loss, and this makes the task all the more difficult. Each physician must do the best he or she can.

Regarding legal protection of physicians treating critically ill patients under suboptimal conditions because of human and resource shortages, there was a law passed by the New York State Legislature on April 2, 2020, called the Emergency Disaster Treatment Protection Act. This law grants immunity for hospitals, physicians and nurses from civil and criminal liability arising from decisions, acts, and omissions throughout the duration of the Governor's emergency declaration, unless there is gross negligence. If someone wanted to sue because they did not have their appointment sooner rather than later, that act would presumably give some measure of protection.

CASE 4: REDEPLOYMENT OF PHYSICIANS

THE DEPARTMENT OF OPHTHALMOLOGY (LIKE ALL OTHER departments at the medical center) has been asked to send attendings and trainees to the emergency rooms and intensive care units for shifts, and other personnel to cover needs across the system.

• **QUESTIONS:** Is it ethical to ask for volunteers or should redeployment be assigned randomly? Should personal factors (ie, skill set, age, immunocompromised state, lung disease, pregnancy, or elder family members at home) play into the decision process? For trainees, is it ethical to place a value on the loss of time in ophthalmologic education when making this decision?

• **ETHICIST'S RESPONSE:** This is an important question for every field of medicine during this pandemic, especially at larger training programs. People may disagree, but the default position should be that all physicians are ready, willing, and able to participate in any way that they can in this COVID-19 crisis. Returning to the question of the 70-year-old surgeon in the first case, a number of hospitals prohibited physicians over a certain age from participating in direct patient care. When running a department or division, an ethical approach is to create a list of the positions that need to be filled. If a physician believed they could not fill a particular role, it is that physician's responsibility to let leadership know. There will be people who have very legitimate reasons, younger people with significant conditions or on certain medications or those living with elder family. On the other hand, those people could participate in a way that would not expose them to direct patient care.

When we chose to enter medical school and become doctors, we presumably understood that there might be situations when we were called upon to treat a dangerous, communicable disease. Many have practiced or trained during previous eras during which the provision of medical care was complicated by such concerns. During the early AIDS era, performing interventions with the potential for exposure to a patient's blood was a palpable concern. If you acquired AIDS at that time, it was universally fatal. Indeed, some doctors and nurses did become ill with AIDS. However, there were patients in need of care, and most physicians responded using the best protections available at the time. Having said that, there are legitimate reasons why a physician might ask to be recused from direct patient care.

A physician should not be forced to assume responsibility when feeling unqualified to do so, for example, if asked to be an attending in an intensive care unit (ICU) with patients on ventilators without any training. Having said that, our medical center was able to avoid ventilator triage through an amazing logistical feat: doubling the number of ICU beds; and this required the spreading of appropriately trained doctors and nurses to staff these expanded ICUs. Physicians were provided with a crash course on ventilator management and were placed in the ICU under the direction of senior intensive care clinicians. Under the present crisis conditions, there might well have been instances of

compromised care, but the only alternative would have been far worse: patients denied ventilators or patients removed from ventilators through a triage system. Many lives were saved by extending our ICU capabilities and human resources. However, ultimately it is up to the individual doctor to say, "I don't feel I can take on this responsibility," and then that physician is expected to contribute in some other way. All of the types of personal factors listed in the case could play into that decision.

Clearly, we are involved in a pandemic of historic magnitude. In this setting, the loss of training time, though important, pales in comparison to the need to treat patients. Patients are our number one priority. Physicians and nurses have risen to meet their greatest professional challenge in decades. Giving up a year of training to be able to help treat patients is both a challenge and a privilege. People will look back at this time and will say of health care workers, borrowing a phrase from Winston Churchill, "this was their finest hour."

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