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Retinal Disease and Retina Clinics in Time of Global Pandemic of SARS-CoV-2

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Abstract

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) associated first case was reported in December 2019 and spread rapidly all over the world. During this period, it is emphasized that the special requirements for any ophthalmological examination should be fulfilled. An important issue for retina clinics is the intravitreal injection application. Procrastination is possible in all intravitreal injections (anti-VEGF, steroid), and a 2-3-month delay may not be a major problem for some diagnoses. However, in some patients, the result of delayed injection may be more severe. Additionally, for procedures requiring physical proximity, such as intravitreal injections and emergency surgeries, it is important to take additional precautions for COVID-19. Another issue is the use of hydroxychloroquine and chloroquine during the COVID-19 outbreak. The toxic cumulative drug dose of drugs is much more than the recommended dose for COVID-19.

As we know, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) associated first case was reported in December 2019 and spread rapidly all over the world. This new virus-related disease was named COVID-19 since the first case was seen in 2019. On January 30, 2020, the World Health Organization (WHO) declared COVID-19 as a global emergency health condition. On 11 March 2020, the WHO declared the spread of the novel coronavirus was a pandemic. Currently, nearly two and a half million people have been affected by the new coronavirus disease (COVID-19), and this number continues to increase. (1) To break the spreading chain of the disease, many preventions like social distancing, remote work, and self-isolation are suggested by many experts, and the curfew is applied in some countries by governments. (2)

During this period, it is emphasized that the special requirements for any ophthalmological examination should be fulfilled. The ophthalmological examination should be performed after covering personal protective equipment (PPE) including masks, goggles, face shields, and disposable shirts. Minimal patient relatives should be allowed into the examination room and unnecessary close contact should be prevented. (3,4) To reduce policlinic, patient, and surgery numbers for ophthalmology clinics is a common practice for most of the countries in accordance with ministries of health instructions, however, to diagnose and primary care for any retinal emergency is essential for any circumstances. During the ocular and retinal examination, there is a strong possibility that the infected person will transmit the virus to the doc-

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tor who examined and others who were there. The American Academy of Ophthalmology stated that all treatments, except emergency cases, should be ceased immediately by all ophthalmologists.(4) In addition, special shields were placed on slit-lamp for this purpose. (3)

An important issue for retina clinics is the intravitreal injection application. Postponements are possible in all intravitreal injections (anti-VEGF, steroid) and a 2-3 month delay may not be a major problem for cases with mild-to-moderate non-proliferative diabetic retinopathy and macular edema. However, in patients with severe non-proliferative diabetic retinopathy and proliferative diabetic retinopathy, the result of delayed injection may be more severe. If intravitreal anti-VEGF agents will be injected for wet age-related active macular degeneration, delay treatment may be more devastating for retinal morphology and the 2-3 month delay may result in macular scarring. Therefore, it is important not to delay the treatment too much. Maybe some minor modifications for treatment protocol may be done if dry macula has been already achieved. Frequent visit and injection periods may be delayed and monthly or pro re nata regimes may be switched to treat and extend, wait and extend, or any customized regimen. Choosing long-acting anti-VEGF drugs may help to defer the following visit. Nonetheless, all circumstances cannot be the same for all patients, and an ideal customized patient-based solution should be considered for any patient. In addition, for intravitreal injection procedures that require physical proximity, it is important for the surgeon to wear a mask with high protection, wearing face-covering and taking precautions for COVID-19. These statements are also valid for emergency surgeries.

Another subject worth talking about is to use hydroxychloroquine and chloroquine during the COVID-19 pandemic. To investigate the effectiveness of this treatment due to COVID-19 is beyond the scope of this letter, however, as we know, this treatment is commonly performed in many countries over ministries of health guidelines. In Turkey, oral hydroxychloroquine 200mg bid for five-day is recommended for adult patients according to COVID-19 (SARS-CoV-2 infection) Guideline of the Ministry of Health.(5) Hydroxychloroquine may be toxic for cornea, ciliary body, and retina; however, this toxicity is dose and time-dependent. Cumulative hydroxychloroquine toxic dose may be accumulated with 400mg per day for 6.8 years for patients have normal kidney and lived functions. (6) This cumulative dose is much more than the recommended dose for COVID-19 and any retinal toxicity may not be expected for patients. There is another issue that may be important. This is the occurrence of COVID-19 disease in individuals with retinal disease accompanying retina and/or retinal pigment epithelial damage. In this case, we do not have any clear information about how long the hydroxychloroquine and chloroquine drug used will cause retinal damage. There is a clinical trial study on this subject that was started in February 2020 and the results should wait.(7) In any case, when faced with a life-threatening disease, COVID-19, it is important not to abandon the use of the medicines mentioned if the physician deems it appropriate, but early ophthalmic examination may become important when the conditions of the pandemic begin to descend.

There is no data yet on whether the novel coronavirus is doing retinal damage. However, it has been shown in an experimental study that the typical coronavirus does retinal damage. In this study, experimental coronavirus retinopathy was created by intravitreal injection of typical coronavirus, and the biphasic course of this disease was revealed. The acute phase appeared in the first week and was associated with inflammation due to viral antigens. The chronic phase occurred after 10th days to months and was associated with immune-related retinal degeneration without an infectious virus.(8) Whether or not the new type of coronavirus has this effect, will become clearer in the next days.

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