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VISION ACADEMY VIEWPOINT

The Vision Academy is a partnership between Bayer and ophthalmic specialists, established with the aim of addressing key clinical challenges in the field of retinal diseases: www.visionacademy.org.

Anti-VEGF Intravitreal Injections in the Era of COVID-19: Responding to Different Levels of Epidemic Pressure

Background

The World Health Organization designated the outbreak of the novel coronavirus, COVID-19, as a pandemic on March 11, 2020, after its rapid spread to countries throughout the world.[1] There is a strong need to support the ophthalmic community to help guide decision-making during these unprecedented times, particularly for patients with retinal diseases who are receiving intravitreal injections of anti-vascular endothelial growth factor (VEGF) agents.

As infection rates are once again accelerating in many countries and vary largely between regions, ophthalmologists must be prepared to respond quickly to the changing epidemic pressure in their local area to ensure that patients receive sight-saving ophthalmic care, while still ensuring the safety of patients and staff.

A key method that has been employed to quantify the epidemic pressure and track the spread of COVID-19 is monitoring of the effective reproduction number (R_t). R_t represents the expected number of new infections generated at time t by each infectious case, in a population where some individuals may no longer be susceptible.[2-5] Achieving an R_t <1 is a key goal to prevent the exponential spread of infection.[2,6]

The Vision Academy Steering Committee first published guidance for anti-VEGF intravitreal injections during the COVID-19 pandemic in April 2020.[7] This guidance was reviewed during the Vision Academy Annual Meeting in August 2020, where members were asked to decide which recommendations should be implemented at three levels of local epidemic pressure. The revised recommendations were refined and voted on by the 14-member Vision Academy Steering Committee for consensus.[8]

Originally developed by the
Vision Academy Steering Committee
in April 2020.

Reviewed and updated in February 2021.

Key to when recommendations are applicable

- Guiding principles and general considerations
- Low epidemic pressure but no herd immunity through mass vaccination; R_t significantly <1; some physical distancing measures implemented. Recommendations also valid in situations with a higher alert level
- High epidemic pressure with many clusters of COVID-19-positive people; R_t ~1; hospital resources not strained. Recommendations also valid in situations with a higher alert level
- Extreme epidemic pressure; R_t significantly >1; hospital resources strained; lockdown measures likely to be implemented. Recommendations only valid in this alert level

Viewpoint

1. Guiding principles

- The safety of patients and healthcare staff is of paramount importance in all decision-making
- Vigilance in identifying suspect cases of COVID-19 is essential; symptoms include dry cough, fever, and fatigue, or less commonly, loss of taste or smell, headache, muscle pain, sore throat, conjunctivitis, dyspnea, nasal congestion, skin rash, or diarrhea[9]
- Diabetic and elderly patients are at a high risk of COVID-19 complications[10,11] and should not be exposed to avoidable risk; however, to avoid irreversible vision loss, it is important to ensure continuation of care wherever possible
- Patients with diabetic macular edema (DME) and branch retinal vein occlusion (BRVO) may be less likely to suffer irreversible vision loss in the short term[12,13]
  - Carefully consider the medico-legal issues associated with advising such patients that, in most cases, vision will not be significantly adversely affected by interrupted/postponed treatment
  - It is important to consider that many patients with DME and BRVO will have already had their treatment postponed during the initial wave of the COVID-19 pandemic, and further deferral of treatment may lead to permanent visual changes
- It is important that there is clear communication and advice for patients receiving intravitreal injections to ensure they feel supported and reassured that their vision is being appropriately managed
- Risk–benefits must be carefully considered, discussed with the patient, and documented, taking the local legal and regulatory environment into consideration

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2. Low epidemic pressure situations

General considerations

- Medical/healthcare staff should be regularly monitored for signs and symptoms of infection, swabbed, and quarantined according to national/institutional guidelines
- Staff should receive regular training on proper use of personal protective equipment (PPE) and other safety practices to reduce the spread of COVID-19, and these practices should be implemented consistently throughout the patient journey[14]
- It is essential that personal, facility, and instrument hygiene/disinfection rules are followed meticulously, as per local guidelines

Prioritizing patients according to medical need

- Considerations regarding the prioritization of patients should be thoroughly discussed (remotely) with the patient, taking into account the local legal/regulatory environment, status of the epidemic, and the capacity of each practice to reschedule postponed procedures
- If necessary, prioritize treatment visits over monitoring visits
  - Inform patients on how to self-monitor their vision (e.g. with Amsler grids or by reading texts with various font sizes) and, where feasible, implement the use of home monitoring technologies such as smartphone apps[15]
- Defer appointments of COVID-19-positive/suspected positive patients until total resolution of symptoms or risk, except for cases requiring emergency intervention or surgery to prevent imminent danger of severe vision loss; such cases should be treated in an adequate facility with appropriate PPE
- Prior to the appointment, patients should be informed about safety and hygiene measures such as the importance of physical distancing by 1 or 2 meters and the potential benefits of wearing a mask[16-18]
- Provide a “Dear Patient” letter to all patients that reiterates the importance of attending appointments and offers advice on what to do should they be unable to attend[19]
- Provide support via an emergency contact number manned by a senior ophthalmologist for consistent patient-triaging advice

Reducing exposure during the patient visit

- Patients and staff should wear a mask at all times to reduce the potential transmission of COVID-19 to healthcare staff or other patients[16-18]
  - An N95 or FFP2 mask is preferred[16]; where these are not available, a surgical mask should be worn by both the clinician and patient
- Good ventilation is recommended in all rooms to reduce any potential viral vector load[20]
- Limit potential exposure in waiting rooms by enforcing 1- or 2-meter physical distancing[16] as per local guidelines, spacing out appointments, allowing only one accompanying adult (if absolutely necessary), and promoting queuing outside the waiting room if possible

Reducing exposure during the patient examination

- Staff must wear PPE (including masks, gloves, goggles, and suits) for patients who are COVID-19-positive or suspected to be positive, or for all patients, as directed by local authorities and institutions
- The selection of appropriate PPE should be determined by local risk assessment and national authority guidance
- Keep patient examinations as brief as possible and consider implementing physical distancing measures between patients and staff
- Thoroughly disinfect hands and equipment, including keyboards, between patients
- In addition to both patients and clinicians wearing a face mask, large plastic/plexiglass shields should be affixed to slit lamps and optical coherence tomography
- Tape the upper edges of the face mask during intravitreal injection procedures to prevent air jets from radiating towards the eyes, thereby avoiding any associated risk of contamination[21]
- For symptomatic, confirmed, or COVID-19-suspected patients, emergency surgery/intervention due to imminent danger of severe vision loss should take place in an adequate facility with appropriate PPE, as per local guidelines

3. High epidemic pressure situations

(in addition to the recommendations above)

Prioritizing patients according to medical need

- Pre-screen patients by phone to identify symptomatic or suspected COVID-19-positive patients (or relatives/caregivers) and direct them to an appropriate setting, e.g. a designated section of the clinic or hospital with enhanced protection and disinfection measures and PPE
- Prioritize and maintain the treatment schedules of patients with neovascular age-related macular degeneration (nAMD) [particularly if they are in the first 2 years of treatment], new patients with significant vision loss, neovascular glaucoma, and monocular or quasi-monocular patients (only one eye >20/40)
- Consider postponement of appointments for non-monocular patients, except for those with significant vision loss from recent DME, proliferative diabetic retinopathy, acute-phase retinal vein occlusion (RVO), and ischemic RVO
- Avoid prolonged treatment postponement (>4–6 months) and reassess the situation within 2–3 months
- Patients with DME and BRVO who already had their treatment postponed >6 months during the initial wave of the COVID-19 pandemic should have their treatment maintained

Reducing exposure during the patient examination

- Limit the use of optical coherence tomography examinations and special instruments (e.g. tonometer/fundus camera/angiograph), unless they are critical to decision-making

Treatment regimen considerations

- Avoid treatment regimens and regimen changes that require frequent monitoring to adjust dosing intervals:
  - Avoid switching treatment regimen unless there is a clear lack of response
  - Avoid changing treatment intervals in patients with nAMD who are responding to a fixed-dose regimen
  - To minimize the need for monitoring in patients with AMD receiving variable-interval treatment regimens (treat-and-extend and *pro re nata* [as needed]), consider reverting to the last effective treatment interval and use this for fixed dosing
  - If possible, for new patients, maintain the loading phase schedule and select longer-acting therapies
  - In patients with DME/RVO, only consider reimplantation of a dexamethasone implant if the patient is responding well and has a history of normal intraocular pressure under such treatment
  - Panretinal photocoagulation may be a preferable treatment choice for patients with severe proliferative diabetic retinopathy to reduce the potential risk of developing tractional retinal detachment
- Reassure patients who are used to an individualized treatment approach that fixed-dosed anti-VEGF regimens are an effective way of delivering treatment[13,22,23]

4. Extreme epidemic pressure situations

(in addition to the recommendations above)

Prioritizing patients according to medical need

- Postpone non-urgent appointments where there is capacity to reschedule within a reasonable time period (see section 3)
- For asymptomatic/non-COVID-19-suspect patients who need treatment, consider referral to a non-hospital-based clinic or ambulatory surgical center, particularly in areas with high infection rates/medical facility shortages
- Consider using telemedicine consultations to monitor patients whose in-person appointments have been postponed
  - It may be acceptable in the short term (⩽4–6 months) to monitor the disease on function only
- If feasible, consider offering home care, particularly for patients under lockdown; home injections may be acceptable in some countries. Home care should only be provided with adequate PPE and hygiene measures

Reducing exposure during the patient examination

- Avoid thorough visual acuity testing of every patient; a simple self-performed test such as a near-reading chart may be sufficient. Brief visual acuity testing (e.g. starting at the smallest-achievable line) should be considered if an important vision change is noted

Further considerations

Management strategies for patients with retinal disease during the COVID-19 pandemic should be reassessed at regular intervals and adjusted in response to local infection rates and the availability of healthcare resources.

The long-term impact of delays or cancellations of ophthalmology appointments during the initial wave of the COVID-19 pandemic is still to be determined. In areas with low infection rates, practicing at as close to normal operating levels as possible, while ensuring preventative safety protocols are in place, is important to limit the risk of irreversible vision loss.

In situations of high or extreme epidemic pressure, measures to ensure the safety of patients and staff and the sustainability of healthcare resources should be intensified. Treatment prioritization for those at the greatest risk of irreversible vision loss may be necessary to limit exposure and free up resources. Simplifying treatment regimens for those receiving intravitreal injections should be considered to reduce the need for frequent monitoring.

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