THE INFECTIVE PROCESS (in a nut shell) Entrance doors of the virus: en eye on the ocular tissue

Paola Bagnoli, Pisa 24 aprile 2020

While researchers are certain that Corona viruses (CoVs) spread through mucus and droplets expelled by coughing or sneezing, it is likely that the virus can also diffuse via other body fluids, such as tears. Since early 2000, CoVs infection was known to be associated with conjunctivitis and in 2004, CoV RNA has been detected for the first time in tears of SARS-CoV patients, suggesting the possibility of virus transmission through ocular tissues and tears (Seah et al, 2020). How CoV eventually gets to the eye from infected droplets (directly, or through the nasolacrimal duct, or the lacrimal gland, etc) remains an unsolved problem. In fact, the end of SARS-CoV epidemic turned off the interest on possible involvement of the ocular tissue in virus infection. The recent SARS-CoV-2 epidemic and the similarity in the receptor that binds both SARS-CoV-2 and SARS-CoV renewed much attention on research into ocular infection as a possible route of SARS-CoV-2 transmission (Reviglio et al, 2020; Seah et al, 2020). Investigations aimed at identifying whether COVID-19 can be transmitted through the ocular route are increasing day by day and their conclusion is that this is a potential route. It is recent the news of COVID-19 isolation in the tears of a patient at Rome's infectious-disease Spallanzani Hospital. The study published in the Annals of Internal Medicine indicates that the eyes are not only an entrance door for the virus but also "a potential source of contagion" (Colavita et al, 2020).

References

Seah I, Agrawal R. Can the Coronavirus Disease 2019 (COVID-19) Affect the Eyes? A Review of Coronaviruses and Ocular Implications in Humans and Animals. Ocul Immunol Inflamm. 2020;1–5. http://doi.org/10.1080/09273948.2020.1738501.

Reviglio VE, Osaba M, Reviglio V, ChiaradiaP, Kuo IC, O'Brien TP. 2019-nCoV and Ophthalmology: A New Chapter in an Old Story. Med Hypothesis Discov Innov Ophthalmol. 2020 Summer; 9(2): 71-73.

Colavita et al. SARS-CoV-2 Isolation From Ocular Secretions of a Patient With COVID-19 in Italy With Prolonged Viral RNA Detection. Annals of Internal Medicine, Letters. April 17, 2020.