

The impact of COVID-19 pandemic on ophthalmological emergency department visits

Marco Pellegrini, MD,¹ Matilde Roda, MD,¹ Enrico Lupardi, MD¹, Natalie Di Geronimo, MD,¹ Giuseppe Giannaccare, PhD,² Costantino Schiavi, MD.¹

¹ *Ophthalmology Unit, S.Orsola-Malpighi University Hospital, University of Bologna, Bologna, Italy.*

² *Department of Ophthalmology, University of “Magna Graecia”, Catanzaro, Italy.*

Corresponding Author:

Marco Pellegrini, MD

Ophthalmology Unit, S.Orsola-Malpighi University Hospital, University of Bologna, Italy

Address: Via Palagi 9, 40138, Bologna, Italy

Tel: +39 051 2142845

Fax: +39 051 342821

E-mail: marco.pellegrini@hotmail.it

Editor,

The novel coronavirus (2019-nCoV) appeared in the Chinese city of Wuhan and precipitously extended across the globe. On the evening of March 9, 2020, the Italian Government ordered a national lockdown to limit social interactions and contain the spread of the infection. As evident in other epidemics, peoples' fear of infection may affect their utilization patterns of health services and reduce the access to health care (Chang et al. 2004). We have previously noted a significant change in the trends of eye injuries since the beginning of the lockdown (Pellegrini et al. 2020). Herein, we aimed to assess the influence of COVID-19 on ophthalmological emergency department visits.

We reviewed the charts of all patients presenting to the ophthalmological emergency department of the S.Orsola-Malpighi University Hospital (Bologna, Italy) during 6 weeks of national lockdown (from March 10 to April 20, 2020), and compared them with those of the same period of the previous year. Retrieved data included patients' demographics, diagnosis and need for hospital admission. Diagnoses were categorized as unlikely to be emergent, likely to be emergent, and not determined, as previously described (Channa et al. 2016).

The total number of ophthalmological emergency department visits during the 2019 study period was 2902, and decreased to 776 in the 2020 study period. Mean age of patients increased from 50.6 ± 22.6 to 53.2 ± 20.5 years ($P = 0.003$, Student's t-test), and the proportion of children and adolescents decreased (from 10 to 5.3%). The percentage of males increased from 50.9 to 55.7% ($P = 0.017$, χ^2 test). The conditions diagnosed in the two study periods are reported in Table 1. In the 2020 study period, the percentage of possibly emergent diagnoses increased (from 30.7 to 38.1%), while unlikely to be emergent diagnoses decreased (from 65.9 to 57.3%; $P < 0.001$, χ^2 test). Patients requiring hospital admission were 27 in the 2019 study period (the indication was retinal detachment in 22 cases, open globe injury in 2, corneal ulcer in 1, angle closure glaucoma in 1, and anterior migration of intravitreal dexamethasone implant in 1) and 9 in the 2020 study period (retinal detachment in 8 cases and open globe injury in 1).

During 6 weeks of national lockdown for COVID-19, there was a 73% decrease in the number of ophthalmological emergency department visits compared to the same period of the previous year. This may be at least partially due to the measures applied during the lockdown. For instance, social distancing and school closure may limit the spread of infectious conjunctivitis, particularly among children and adolescents. In addition, many patients may choose to manage non-urgent conditions by themselves or through remote communication (e.g., via telephone or video) with their ophthalmologists. Therefore, it is understandable that the percentage of nonemergent diagnoses decreased. However, there was a substantial reduction also of potentially serious conditions, including

those requiring urgent surgery such as retinal detachment. This may reflect the patients' reticence towards risking coronavirus exposure in health-care settings, as reported anecdotally even for life-threatening conditions such as myocardial infarction (Krumholz 2020). In agreement with this, a recent study documented a substantial decrease in pediatric emergency department visits across five Italian hospitals during the lockdown. In some cases, delayed access to hospital care due to the fear of infection resulted in intensive care unit admission or even death (Lazzerini et al. 2020). The reduced access to health care represents a serious public health concern, and patients with urgent ophthalmological conditions avoiding specialized treatment are at high risk of permanent vision loss. Therefore, it is essential to inform patients on the importance of not delaying needed ophthalmological treatment.

Acknowledgements: None of the authors has any financial/conflicting interests to disclose.

References

- Chang HJ, Huang N, Lee CH, Hsu YJ, Hsieh CJ, Chou YJ (2004). The impact of the SARS epidemic on the utilization of medical services: SARS and the fear of SARS. *Am J Public Health* **94**: 562-564. doi:10.2105/ajph.94.4.562
- Channa R, Zafar SN, Canner JK, Haring RS, Schneider EB, Friedman DS (2016). Epidemiology of Eye-Related Emergency Department Visits. *JAMA Ophthalmol* **134**: 312–319.
- Krumholz HM (2020). Where Have All the Heart Attacks Gone? *New York Times*. Published online April 6, 2020. <https://www.nytimes.com/2020/04/06/well/live/coronavirus-doctors-hospitals-emergency-care-heart-attack-stroke.html>.
- Lizzerini M, Barbi E, Apicella A, Marchetti F, Cardinale F, Trobia G (2020). Delayed access or provision of care in Italy resulting from fear of COVID-19. *Lancet Child Adolesc Health*. Published online April 9, 2020.
- Pellegrini M, Roda M, Di Geronimo N, Lupardi E, Giannaccare G, Schiavi C (2020). Changing trends of ocular trauma in the time of COVID-19 pandemic. *Eye (Lond)*. Accepted manuscript.