

# Comment on ‘Assessment of corneal endothelial cell morphology and anterior segment parameters in COVID-19’

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*Ther Adv Ophthalmol*

2022, Vol. 14: 1–2

DOI: 10.1177/  
25158414221138204

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**Keywords:** corneal endothelium, coronavirus disease 2019, specular microscopy

Received: 30 August 2022; revised manuscript accepted: 21 October 2022.

This article is a comment on: Oren B, Kocabas DO. Assessment of corneal endothelial cell morphology and anterior segment parameters in COVID-19. *Ther Adv Ophthalmol*. 2022 May 9; 14: 25158414221096057. DOI: 10.1177/25158414221096057.

Dear Editor,

I want to congratulate Oren *et al.* on their article titled ‘Assessment of corneal endothelial cell morphology and anterior segment parameters in COVID-19’.

Oren and Kocabas<sup>1</sup> have concluded that endothelial cell density and hexagonal cell percentage decreased along with an increase in the coefficient of variation in individuals recovering from COVID-19 in the early period of the disease. However, many important points need to be clarified in this study.

The authors state that there have been no previous reports on the effects of COVID-19 on corneal endothelial cells using specular microscopy at the end of the introduction and in the discussion. However, Erdem *et al.*<sup>2</sup> published a study in 2021, showing the effects of COVID-19 on corneal endothelium using specular microscopy. The authors should correct this mistake. Central keratometric values below 47.2 D are considered to be normal, values between 47.2 and 48.7 D are accepted as probable keratoconus, and values greater than 48.7 D are important criteria for clinical keratoconus.<sup>3</sup> The authors stated that K1 and K2 values were 47.89 D and 48.71 D in the COVID-19 group and 48.45 D and 49.07 D in the control group, respectively, in their study’s Table 2. Since the authors stated that the

control group consisted of individuals without any systemic or ocular diseases in the “Method” section of the study, the authors need to explain the high keratometric values of the individuals.

The fixed-frame method of specular microscopy can cause significant errors in the presence of a higher number of border cells because the borders of the frame cut endothelial cells.<sup>4</sup> The variable frame method can be preferred instead of the fixed-frame method to eliminate border errors. I wonder which method the authors used in this study. Furthermore, it would be great if the authors could show a representative figure for specular microscopic findings comparing a patient recovering from COVID-19 and a healthy participant.

The authors summarized the demographic and clinical characteristics of the study groups in their study’s Table 1. They specified that the best-corrected visual acuity was 0.17 LogMAR (equal to 20/29 Snellen acuity) in the COVID-19 group and 0.14 LogMAR (equal to 20/27 Snellen acuity) in the control group. What is the specific reason for the relatively low vision in the study population?

The authors reported a significant decrease in the number of endothelial cells in the COVID-19 group compared with the control group (2278.50 *versus* 2420.15). Did the authors see any dark spots or areas on the endothelium in the images of the COVID-19 group when evaluating endothelial cells? Because dark spots or areas may arise as a result of various protuberances on the endothelium, such as dead endothelial cells or cellular debris.<sup>5</sup>

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It would be highly informative if the authors give the patients' immune cell levels including lymphocyte counts, lymphocyte percentages, and lymphocyte subsets at the time of diagnosis of COVID-19. In addition, it would be useful in terms of elucidating the etiopathogenesis of the study results if the authors present the serum concentration levels of acute-phase reactants including CRP, sedimentation, and procalcitonin as the inflammation biomarkers during the active period of COVID-19, and analyze a correlation between these values and endothelial cells. Because the endothelial cell function may be impaired by the immune dysregulation and proinflammatory effect in the light of recent literature.

I believe that the study's value for the literature will increase with the authors' responses.

### Declarations

*Ethics approval and consent to participate*  
Not applicable.

*Consent for publication*  
Not applicable.

### Author contributions

**Nurettin Bayram:** Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Writing – original draft; Writing – review & editing.

*Acknowledgements*  
None.

### Funding

The author received no financial support for the research, authorship, and/or publication of this article.

### Conflicts of interest

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Availability of data and materials

Not applicable.

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