Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the Editor

Retinal findings in COVID-19 patients with diabetes mellitus

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To the editor,

We read with great interest the correspondence by Dr. Raony and Dr. Saggioro de Figueiredo, describing the possible role of CD147 in retinal findings observed in coronavirus disease 2019 (COVID-19) patients with diabetes mellitus (DM) [1]. Recent experimental and clinical findings suggested transmembrane glycoprotein CD147, also termed Basigin, may represent a novel receptor for Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) entry into host cells [2]. Since CD147 is expressed at moderate-to-high levels in human retina [3] and has also proven to be an essential molecule for blood-retinal barrier impairment in streptozotocin-induced diabetic mice [4], the authors suggested an intriguing hypothesis.

At present we are passing through a phase of slow and difficult understanding of the clinical spectrum and the emerging short- and long-term complications caused by SARS-CoV-2 infection. In this sense, the retinal involvement has drawn attention as a possible biomarker of microangiopathy in COVID-19 patients [5]. Marinho et al. reported cotton wool spots (CWS) and microhemorrhages in patients with COVID-19 [6]. However, these findings have been strongly questioned by other authors [7]. Additionally, Landecho et al. recently reported CWS in 6 out of 27 patients evaluated 14 days after hospital discharge due to COVID-19 bilateral pneumonia [5].

CWS represent retinal nerve fiber layer infarcts and may appear in a broad spectrum of diseases, such as diabetic retinopathy and hypertensive retinopathy among others [5]. As arterial hypertension and DM are common comorbidities encountered in hospitalized patients with COVID-19, it is unclear if CWS represent a true retinal microangiopathy associated with SARS-CoV-2 infection, retinal lesions prior to infection or simply clinical abnormalities related to uncontrolled diseases during the infection.

Our research team has conducted several studies in COVID-19 patients [8–10]. We evaluated a larger sample that included 80 laboratory-confirmed COVID-19 patients (160 eyes). Clinical characteristics of the patients are shown in Table 1. Examination was performed 30 days (28–32) after COVID-19 diagnosis. Every patient underwent fundus examination and optical coherence tomography (OCT). Funduscopic examination of all patients was unremarkable, not revealing cotton wool spots nor retinal hemorrhages.

Considering these contradictory data, further research on COVID-19 retinal outcomes is warranted. We commend the authors on the interesting hypothesis. Whether SARS-CoV-2 infection may precipitate or exacerbate retinal lesions in patients with DM in the short- or long-term requires to be carefully evaluated.

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Table 1 – Demographic and clinical characteristics of COVID-19 patients.

Variable	N=80
Sex	
Male. No (%)	39 (48,8)
Female. No (%)	41 (51,3)
Age. Mean (SD)	55,8 (8,7)
Medical history	
AH. No (%)	20 (25,0)
DM. No (%)	6 (7,5)
DL. No (%)	21 (26,3)
Clinical severity	
Mild. No (%)	27 (33,8)
Moderate. No (%)	20 (25,0)
Severe. No (%)	33 (41,3)

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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