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# Photodiagnosis and Photodynamic Therapy

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## Comment on "Hyperplasia of the retinal pigment epithelium secondary to subthreshold laser treatment in chronic central serous chorioretinopathy."

Dear editor

We have read with interest the article by Enríquez-Fuentes et al. titled 'Hyperplasia of the retinal pigment epithelium secondary to subthreshold laser treatment in chronic central serous chorioretinopathy.' (CSC) [1]. As authors of some of the works cited in the references of said article, including the guidelines of the Subthreshold Ophthalmic Laser Society (SOLS) [2] for laser treatment, and on behalf of this society, we deemed it appropriate to prepare this letter.

The main issue is the retinal pigment epithelium (RPE) Hyperplasia described after subthreshold laser (STL) treatment in some of the cases, which showed up in the OCT measurements as a hyper-reflective dense material at the site of the RPE that had not been there prior to the STL treatment. This change was accompanied by visual loss. This type of reaction can be attributed to an excess of energy absorbed by the RPE - hence, an excess of energy administered by the laser device. The SOLS guidelines advocate for individual titration of the power used since the factors determining its absorption are multiple and complex (degree of pigmentation of the RPE, transparency of media, health status of the retina and RPE, etc.). While there is no absolute consensus on the reduction of power to apply after calibration -although most authors in the guide recommend a 50 % reduction- we believe that this method is safer than ignoring the energy absorption factors of each individual and considering only the characteristics of their CSC -i.e. using a higher power on a longer-standing disease, with a thinner and weaker RPE, known to be less resilient to laser energy. Not only safer in terms of avoiding overtreatment but also in terms of undertreatment, which is the problem of using universal parameters on the low side, reflected in the low response rate (37 %) to treatment reported among patients who did not show RPE hyperplasia. Of course, repeated or added up processes of titrating might add up to some significant damage if care is not taken to avoid repeatedly titrate over the same areas in cases that titration needs to be performed anew. Other parameters recommended by SOLS are 100–200  $\mu\text{m}$  spots at 5 % duty cycle in a confluent pattern.

On the other hand, we believe that the 5 % duty cycle is a widely accepted parameter, and it is not advisable to alter it since an increase in it has not shown greater effectiveness in treatment. We believe that this increase in the duty cycle is the responsible factor for the high fluences reported. Fluence doubles by switching from 5 % to 10 % duty cycle.

We also want to mention that the study by Torrellas et al. [3] specifies the duty cycle employed (5 %, materials and methods-procedures),

contrary to what is stated in the publication to which this letter refers.

In summary, according to what the authors of the article mention, the development of guidelines through experimental methods provides the greatest reliability in establishing treatment parameters. However, given the current absence of evidence from animal evidence, previous works and experience constitute the best guide to follow. Although photodynamic therapy (PDT) remains widely regarded as the first line treatment for chronic CSC, there is a lot of accumulated evidence on the best practice regarding STL.

### CRedit authorship contribution statement

**Jay Chhablani:** Writing – original draft. **Alejandro Filloy:** Writing – original draft. **Victor Chong:** Writing – original draft. **Lihteh Wu:** Writing – original draft. **Kenneth Fong:** Writing – original draft.

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