tvst

Letter to the Editor

Letter to the Editor: Changes in Choroidal Vascularity Index in Intermediate Uveitis

We read with great interest the article titled "Changes in Choroidal Vascularity Index (CVI) in Intermediate Uveitis" by Wijak Kongwattananon et al.[1]

We congratulate the authors for their very interesting study, but we would like to make some comments about this work. Choroidal evaluation has been widely used in several conditions.[2]

In this article, the authors used the CVI. This index was first described by Agrawal in the attempt to better distinguish the luminal from the stromal area and it represents the ratio between vascular luminal area and total choroidal.[3]

Since then, CVI has been largely used for such a purpose in the international literature.[4]

This technique, in our opinion, has a limitation because it can be influenced by the so-called blooming effect.

The blooming effect is well-known in the echographic field and consist of an artifact that makes it difficult to obtain reliable measurements of the examined structures, mainly if they are very small as in case if ocular and orbital structures.[5–7] This effect is related to the signal amplification and seems to be present also in case of optical coherence tomography and CVI evaluation.

In particular, when a high signal amplification is used, the image will seem to be brighter, and the number of white pixels will be greater, while the opposite will happen using a low setting.[8–10]

Because the CVI is obtained by converting an image from gray scale into a binary one, which has only black and white pixels, when using high settings, the image will seem to be brighter and the number of white pixels will be higher compared with the same image, using a lower amplification setting.

In this way during the binarization, the luminal area will seem to be decreased compared with the same image obtained with lower amplification, making the comparison between pictures and the results unreliable. To avoid such a problem and to make reliable the results, a standardization of the method, so far unavailable, should be developed.

Riccardo Costigliola[1], Andrea Valerio Marino[1], and Isabella Fioretto[1]

[1] Department of Medicine, Surgery and Dentistry "Scuola Medica Salernitana," University of Salerno, via S. Allende 84081, Baronissi, Salerno, Italy. e-mail: r.costigliola@studenti.unisa.it

References

1. Kongwattananon W, Kumar A, Oyeniran E, Sen HN, Kodati S. Changes in choroidal vascularity index (CVI) in intermediate uveitis. *Transl Vis Sci Technol.* 2021;10:33.
2. De Bernardo M, Altieri V, Coppola A, Gioia M, Rosa N. Choroidal evaluation in patients under alpha-lytic therapy. *Graefes Arch Clin Exp Ophthalmol*. 2020;258(12):2729–2736.
3. Agrawal R, Gupta P, Tan KA, Cheung CM, Wong TY, Cheng CY. Choroidal vascularity index as a measure of vascular status of the choroid: Measurements in healthy eyes from a population-based study. *Sci Rep*. 2016;6:21090.
4. De Bernardo M, Vitiello L, Battipaglia M, et al. Choroidal structural evaluation in celiac disease. *Sci Rep*. 2021;11(1):16398.
5. De Bernardo M, Vitiello L, Rosa N. Ultrasound optic nerve sheath diameter evaluation in patients undergoing robot-assisted laparoscopic pelvic surgery. *J Robot Surg*. 2019;13(5):709–710.
6. De Bernardo M, Vitiello L, Rosa N. Optic Nerve Evaluation in Idiopathic Intracranial Hypertension. *AJNR Am J Neuroradiol*. 2019;40(7):E36.
7. Vitiello L, De Bernardo M, Capasso L, Cornetta P, Rosa N. Optic Nerve Ultrasound Evaluation in Animals and Normal Subjects. *Front Med (Lausanne)*. 2022;8:797018.

Copyright 2022 The Authors

This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.

Downloaded from hwmaint.iovs.org on 04/20/2024

8. De Bernardo M, Vitiello L, Rosa N. A-scan ultrasonography and optic nerve sheath diameter assessment during acute elevations in intra-abdominal pressure. *Surgery*. 2020;167(6):1023–1024.
9. Capasso L, De Bernardo M, Vitiello L, Rosa N. Ultrasound Options for Measuring Optic Nerve Sheath Diameter in Children. *Pediatr Crit Care Med*. 2021;22(5):e329–e330.
10. De Bernardo M, Rosa N. Clarification on Using Ultrasonography to Detect Intracranial Pressure. *JAMA Ophthalmol*. 2017;135(9):1004–1005.

translational vision science & technology

Downloaded from hwmaint.iovs.org on 04/20/2024