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Corneo-pterygium total area measurements utilising image analysis method (Article) (Open Access)

[Mediciones del área total de pterigium corneal utilizando un método de análisis de imagen]

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Abstract

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Purpose: To describe an objective method to accurately quantify corneo-pterygium total area (CPTA) by utilising image analysis method and to evaluate its association with corneal astigmatism (CA). Methods: 120 primary pterygium participants were selected from patients who visited an ophthalmology clinic. We adopted image analysis software in calculating the size of invading pterygium to the cornea. The marking of the calculated area was done manually, and the total area size was measured in pixel. The computed area is defined as the area from the apex of pterygium to the limbal-corneal border. Then, from the pixel, it was transformed into a percentage (%), which represents the CPTA relative to the entire corneal surface area . Intra- and inter-observer reliability testing were performed by repeating the tracing process twice with a different sequence of images at least one (1) month apart. Intraclass correlation (ICC) and scatter plot were used to describe the reliability of measurement . Results: The overall mean (N = 120) of CPTA was 45.26 ± 13.51% (CI: 42.38–48.36). Reliability for region of interest (ROI) demarcation of CPTA were excellent with intra and inter-agreement of 0.995 (95% CI, 0.994–0.998; P < 0.001) and 0.994 (95% CI, 0.992–0.997; P < 0.001) respectively. The new method was positively associated with corneal astigmatism (P < 0.01). This method was able to predict 37% of the variance in CA compared to 21% using standard method. Conclusions: Image analysis method is useful, reliable and practical in the clinical setting to objectively quantify actual pterygium size, shapes and its effects on the anterior corneal curvature. © 2019

SciVal Topic Prominence

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