Prediction of Changes in Visual Acuity and Contrast Sensitivity Function by Tissue Redness after Pyenylm Surgery


Department of Ophthalmology, Kulliyyah of Medicine, International Islamic University Malaysia (IIUM). Kuantan, Pahang, Malaysia

Purpose: The goal of this study was to predict visual acuity (VA) and contrast sensitivity function (CSF) with tissue redness grading after pyenylm surgery. Materials and methods: A total of 67 primary pyenylm patients were selected from patients who visited an ophthalmology clinic. We developed a semi-automated computer program to measure the pyenylm fibrovascular index from digital images of the pyenylm fibrovascular images. The final outcome of this software is a continuous scale grading of 0 (minimum redness) to 3 (maximum redness). The grading was performed manually using the software. Reliability was determined by repeated grading of 36 images, and its association with CSF and VA was examined. Results: The mean and standard deviation of the pyenylm fibrovascular index was 1.88 ± 0.53. Inter-grader and inter-grader reliability estimates were high with intra-class correlation ranging from 0.97 to 0.98. The new grading was positively associated with CSF (p < 0.01) and VA (p < 0.05). The redness grading was able to predict 70% and 73% of the variance in the CSF and the VA, respectively. Conclusions: The new grading of pyenylm fibrovascular index can be reliably measured from digital images and showed a good correlation with CSF and VA. The redness grading can be used in addition to the existing pyenylm grading. © 2017 Taylor & Francis.

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