



Graphic blur simulation of vision loss in patients with macular disease using results of discriminated target central fields

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Background:

Images representing the vision of eyes with retinal disease have been presented in the past but with no verification of authenticity. Central visual fields of discriminated targets have allowed production of simulations using a blur paradigm to represent loss of resolution due to spherical blur, but these simulations have not been verified for macular disease.

Patients and methods:

For 22 patients with monocular pathology (6 DR, 3 atrophic ARMD, 7 ARMD CNVM, 3 BRVO, and 3 following RD repair), a black and white picture that was altered using a blur algorithm for the threshold resolution obtained at each intercept was compared with an image that was altered by the patient using Adobe PhotoShop filtering tools.

Results:

Twenty of the patients stated that the composite picture, generated from the visual field data, when viewed with their good eye, closely represented what they observed in the eye with pathology. Two determined that the simulation was not correct because of severe distortions not represented. Six determined the field data simulation was better than what was produced with Adobe PhotoShop. Eight indicated the images were similar, and six felt the images were inferior, primarily because of unrepresented luminance changes or because of contrast loss (either in darker portions of the image or in lighter portions).

Conclusion:

More than half of the patients with macular pathology in one eye noted that a composite picture generated from the discriminated target visual field testing presented a reasonable simulation of their vision abnormalities for black and white images. This method, therefore, appears reasonable to simulate the vision loss of individuals having macular pathology as has been previously reported for spectacle blur. Visual field contrast sensitivity data, as well as quantitated distortions in the future will be added to the picture from data derived by this field testing.