Improvement of Rods and Cones Function After Intravitreal Bevacizumab (Represented by Increase a-wave Electroretinogram Response) in Neovascular AMD Patients

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Purpose: To assess the effect of Bevacizumab (Avastin®), a vascular endothelial growth factor (VEGF) inhibitor on retinal function by full-field electroretinogram (ERG) in patients with neovascular Age-related Macular Degeneration (AMD).

Methods: Masked, nonrandomized controlled, prospective study, included 12 patients (5 men and 7 women), mean age 72 years. All of the patients were injected with Bevacizumab 1.25 mg/0.05 ml (Genentech, San Francisco, CA) unilaterally into the vitreous cavity as part of the standard management for choroidal neovascular AMD. Prior to bevacizumab injection and 1 month post-injection, BCVA, full ophthalmic examination, OCT scans and full-field ERG scans were obtained from both eyes of each patient. Scotopic responses were recorded in four incremental single light intensities (0.099 cd-s/m^2 2.44 cd-s/m^2, 23.5 cd-s/m^2 , 252 cd-s/m^2). Photopic responses were measured in two incremental single white light intensities (2.44 cd-s/m^2, 7.8 cd-s/m^2). Amplitudes of the ERG wave form both eyes at baseline and 1 month after intravitreal injection were recorded while the other eye was used as a control group.

Results: In the injected eyes the average difference of amplitude responses after and before injection of the incremental light intensities of scotopic and photopic *a*-waves were 15.92 and 4.97 and they were significantly higher than the averages in controlled eyes 1.33 and -1.0625 (p-values, P=0.057 and P=0.01 correspondingly).
The averages scotopic *b*-wave amplitude responses did not show significant differences (P=0.23) between the injected and the controlled eyes.

Conclusions: Intravitreal injection of bevacizumab improves rods and cones function (as represented by increased a-wave Electroretinogram responses) in neovascular AMD patients.