Abstract 5

MACULAR THICKNESS AND VISUAL ACUITY ARE CHARACTERIZED BY A QUADRATIC NONLINEAR RELATION IN PREVIOUSLY TREATED NEOVASCULAR AMD EYES: RETINAL THICKNESS DEVIATION VALUES BETTER PREDICTS VISUAL FUNCTION.

Oral

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Purpose:

Importance: Although many clinical studies utilize retinal thickness to estimate the response in neovascular exudative age-related macular degeneration, relationship between this variable and visual acuity is unclear.

Purpose: To assess the associations between visual acuity and retinal thickness in neovascular AMD eyes previously treated with anti-vascular endothelial growth factor (VEGF) therapy.

Methods:

Design: Retrospective study.
Setting: Ophthalmology Department, University of Turin.
Participants: 68 patients (68 eyes) with exudative neovascular AMD undergoing anti-VEGF therapy with two years of follow-up imaging data after the initiation of treatment.
Exposure: Patients underwent a complete ophthalmologic evaluation, including imaging with structural OCT. Linear and nonlinear regression analyses with curve fitting estimation were performed to explore the relationship between visual acuity and OCT-based parameters at the 3-month and 24-month follow-up visits. Regression analyses were also performed between visual acuity and the retinal thickness deviation which was calculated as the absolute value of the difference between measured and normative retinal thickness values.

Results:

Results:In univariate analysis,the visual acuity was not associated with either the foveal($R^2=0.011,\beta=-0.104$ and $p=0.401$ at the 3-month follow-up visit;$R^2=0.032,\beta=-0.180$ and $p=0.142$ at the 24-month follow-up visit)or parafoveal($R^2=0.045, \beta=-0.231$ and $p=0.081$ at the 3-month follow-up visit;$R^2=0.050,\beta=-.240$ and $p=0.055$ at the 24-month follow-up visit) retinal thicknesses.However,compared with the linear models,a quadratic function yielded a relative increase in the R^2 coefficients.In the univariate analysis,the visual acuity was linearly associated with foveal retinal thickness deviation ($R^2=0.041$ and $p=0.037$ at the 24-month follow-up visit) and parafoveal retinal thickness deviation ($R^2=0.062$ and $p=0.040$ at the 3-month follow-up visit;$R^2=0.088$ and $p=0.014$ at the 24-month follow-up visit) values.

Conclusions:

Conclusions:These findings may reflect that early in the treatment course, visual acuity may improve as the retinal thickness decreases,but subsequently, further retinal thinning is associated with a decline in vision.This suggests that deviation-based parameters may be of benefit for structure-function correlations in the context of anti-VEGF therapy for neovascular AMD.