

Abstract 53

CAPTURING THE TRANSITION FROM INTERMEDIATE TO NEOVASCULAR AMD: LONGITUDINAL INNER RETINAL THINNING AND FACTORS ASSOCIATED WITH NEURONAL LOSS

Oral

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Purpose:

To estimate the impact of transition from intermediate to exudative neovascular age-related macular degeneration (AMD) on the inner retina and to assess the relationship of clinical characteristics and optical coherence tomography (OCT) findings with inner retinal changes.

Methods:

A total of 80 participants (80 eyes) with intermediate AMD at baseline who developed neovascular AMD within 3 months were included in the analysis. OCT scans at follow-up visits (after transition to neovascular AMD) were compared with values at the latest visit with evidence of intermediate AMD to quantify longitudinal inner retinal changes. OCT images were also reviewed for qualitative features reflecting a distress of the outer retina or retinal pigment epithelium and for presence and characteristics of exudation.

Results:

The parafoveal and perifoveal inner retinal thicknesses were $97.6 \pm 12.9 \mu\text{m}$ and $103.5 \pm 16.2 \mu\text{m}$ at baseline and a significant increase in values was detected at the visit with first evidence of neovascular AMD ($99.0 \pm 12.8 \mu\text{m}$, $p=0.025$; $107.9 \pm 19.0 \mu\text{m}$, $p<0.0001$). Conversely, the inner retina was significantly thinner at the 12-month follow-up visit following the initiation of anti-VEGF therapy ($90.3 \pm 14.8 \mu\text{m}$, $p<0.0001$; $92.0 \pm 21.3 \mu\text{m}$, $p<0.0001$). At the 12-month follow-up visit, OCT evidence of alterations of the external limiting membrane and history of previous intraretinal fluid were associated with a greater inner retinal thinning.

Conclusions:

The development of exudative neovascularization is associated with significant neuronal loss that may be detected once the exudation is resolved. OCT analysis demonstrated a significant relationship between morphological alterations detected using structural OCT and the amount of inner neuronal loss.