

Retinal Microvascular Changes During Donanemab Therapy in Early Alzheimer’s Disease: A 6-Month Longitudinal Study.

#13264

Suqing Hu 1, Zhen Wang 1, William Robert Kwapong 2
1 Geriatrics Department, The First Affiliated Hospital of Wenzhou Medical University, Wenzhou, Ouhai, China. 325000.
2 Neurology Department, Xuanwu Hospital, Capital Medical University, Beijing, China.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
Alzheimer’s disease (AD) is characterized by the accumulation of amyloid-β (Aβ) peptides. Donanemab, an antibody targeting a modified form of deposited Aβ, is under investigation for treating early AD. This study assesses 6-month changes in retinal microvasculature as a potential non-invasive biomarker for cerebral microvascular alterations during donanemab therapy.	In this prospective observational study, 20 patients with AD receiving donanemab underwent serial 3T magnetic resonance imaging (MRI) to monitor amyloid-related imaging abnormalities (ARIA) and retinal imaging via color fundus photography (CFP). Retinal microvascular complexity was quantified using fractal dimension and retinal tortuosity analysis at baseline and after 6 months of treatment.	After 6 months of donanemab therapy, retinal microvascular complexity showed a significant reduction in fractal dimension (1.44 ± 0.06 vs 1.43 ± 0.04 ; $p = 0.037$), suggesting a decrease in vascular branching complexity. Additionally, retinal tortuosity increased significantly (4.67 ± 0.86 vs 5.23 ± 0.82 ; $p < 0.001$), indicating structural changes in the retinal vasculature.	These findings suggest that donanemab treatment is associated with alterations in retinal microvascular structure, reflected by decreased complexity and increased tortuosity. Given the structural similarity between retinal and cerebral microcirculation, retinal vascular changes may provide a non-invasive marker for monitoring cerebral microvascular responses during AD therapies. Retinal imaging can serve as a valuable tool for evaluating microvascular changes in patients undergoing amyloid-targeted treatments for AD. Further studies are necessary to establish retinal metrics as reliable biomarkers for monitoring treatment efficacy and safety.	Kwapong WR, Wu N, Lin W, et al. Retinal microvascular alterations in Alzheimer's disease: Linking blood plasma biomarkers and cerebral small vessel pathology. <i>Alzheimers Dement</i> 2025; 21: e70745. 2025/10/09. DOI: 10.1002/alz.70745. Kwapong WR, Chen Z, Wang Y, et al. Retinal microvascular dysfunction in mild cognitive impairment: Associations with cerebral small vessel disease, plasma biomarkers, and cognitive decline. <i>Alzheimers Dement</i> 2026; 22: e71216. 2026/02/28. DOI: 10.1002/alz.71216. CONTACT 