Anterior Chamber Angle Measurements after Multiple anti-VEGF Intravitreal Injections in Age Related Macular Degeneration

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Purpose:
To investigate a potential mechanism underlying chronic elevation in intraocular pressure in patients with neovascular age-related macular degeneration (AMD) receiving multiple intravitreal injections of anti-VEGF agents.

Methods:
Patients diagnosed with either neovascular or non-neovascular age-related macular degeneration were recruited from Washington University in St. Louis Eye Center. Study subjects underwent a complete ophthalmic exam. Ophthalmic history was obtained by record review. Eyes meeting eligibility requirements were imaged with AS-OCT Spectralis (Heidelberg Engineering, Heidelberg, Germany) in scotopic conditions. Data on age, gender, self-reported race, and phakic status were also evaluated. Anterior chamber angles at 3 and 9 o’clock of each eye were objectively measured using Spectralis software.

Results:
Sixty-one eyes from 37 patients with AMD met eligibility criteria. Using a multivariable linear regression, pseudophakia was associated with wider anterior chamber angles (β coefficient 10.5° temporally; β coefficient 10.8° nasally). No statistically significant association was found between number of intravitreal injections and anterior chamber angle at either nasal (β coefficient -0.073°, p = 0.426) or temporal (β coefficient -0.110°, p = 0.160) location. Female sex was associated with slightly wider temporal angles (β coefficient 4.8°, p =0.013) compared to male counterparts, but no difference was found at the nasal location.

Conclusions:
Although the literature indicates a chronic increase in intraocular pressure occurs in a subset of patients receiving multiple intravitreal injections, our data suggest that this is not associated with chronic, macroscopic changes in the anterior chamber angle. Further studies may better elucidate the pathogenic mechanisms underlying this phenomenon.