

Clinical Outcomes of Eyes with Neovascular Glaucoma Treated with Intravitreal Anti-Vascular Endothelial Growth Factor Injections

Erik Massenzio, AB, David Xu, MD, Turner Wibbelsman, BS, Anthony Obeid, MD, MPH, Jason Hsu, MD

Retina Service, Wills Eye Hospital

Sidney Kimmel Medical College at Thomas Jefferson University

Disclosures

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Summary

- Role of anti-VEGF injections in managing neovascular glaucoma is unclear
- Some patients still have uncontrolled IOP despite this treatment while others improve
- Factors at time of initial NVG presentation to a retina specialist associated with glaucoma progression despite anti-VEGF therapy:
 - 2 or more glaucoma medications
 - Any systemic glaucoma medication
 - IOP >35
 - HM or worse vision
- Prompt referral to a glaucoma specialist especially for patients with these presenting features may be warranted

Neovascular Glaucoma (NVG)

- Result of iris and angle neovascularization
- Multiple etiologies: PDR, CRVO, CRAO
- Patients often have concomitant causes for decreasing visual acuity



Image: Lewis, 2019.

Therapy for NVG

- NVG therapy is goal directed
 - Decrease IOP to safe levels → preservation of vision
 - Comfort measures if poor vision potential
- Treatment for NVG:
 - IOP lowering eye drops or systemic medication
 - Anti-VEGF injection
 - Panretinal photocoagulation (PRP)
 - Glaucoma surgery

Anti-VEGF injections for new NVG patients

- Efficacy of anti-VEGF injections well established for neovascular pathologies
- Some patients with NVG still have uncontrolled IOP despite anti-VEGF treatment
- What presenting features predict which patients will experience glaucoma progression despite receiving anti-VEGF injections for NVG?

Purpose

- To determine patient characteristics that predict worse clinical outcomes in eyes with neovascular glaucoma (NVG) that have received intravitreal anti-vascular endothelial growth factor (VEGF) therapy

Methods

- Retrospective cohort study of 237 eyes
- Wills Eye Hospital and offices of Mid Atlantic Retina, 9/8/11 to 5/8/20
- **Inclusion criteria:**
 - Diagnosis of NVG
 - ≥ 1 anti-VEGF injection within 2 months of diagnosis
- **Exclusion criteria:**
 - < 6 months of follow up (unless patient reached endpoint before 6 months)
 - Prior glaucoma surgery
 - NLP vision at initial diagnosis visit
 - Injection received after endpoint occurred

Data Collected

- **Etiology:** PDR, CRVO, CRAO or Other
- **Presenting characteristics:** Age, gender, VA, IOP, complaints of discomfort, medications, lens status, cup to disc ratio
- **Follow-up data:** VA, IOP, anti-VEGF and PRP treatment(s), glaucoma medications (eye drops and systemic)
- **Endpoint:** “Glaucoma progression” = incisional glaucoma surgery or progression to NLP vision within 6 months

Results: Baseline Characteristics

Patient characteristic	Number of patients (%)
Female	102 (43%)
Etiology of NVG	
PDR	125 (53%)
RVO	68 (29%)
RAO	23 (9%)
Other	21 (9%)
Received glaucoma surgery	65 (27%)
Progression of glaucoma	85 (36%)
First NVG visit data	
Age (SD)	67 (15) years
Paracentesis	55 (23%)
Gonioscopy	58 (24%)
1 or more glaucoma medications	155 (65%)
Systemic glaucoma medication	23 (10%)
IOP elevated >20 mmHg	184 (78%)
Discomfort noted in affected eye	88 (37%)
Median glaucoma medications	1 medication
Mean IOP (SD)	30.9 (12.5) mmHg
Mean logMAR VA affected eye (Snellen equivalent)	1.681 (~20/1000)
Mean logMAR VA fellow eye (Snellen equivalent)	0.564 (~20/80)

Results: Multivariate Analysis

- Presenting factors independently associated with progression to glaucoma surgery or NLP vision by 6 months:
 - 2 or more previously prescribed glaucoma medications
 - (OR = 2.66, $p=0.003$, 95% CI = 1.410 - 5.025)
 - Previously prescribed systemic glaucoma medication
 - (OR = 3.16, $p=0.038$, 95% CI = 1.066 - 9.346)
 - Presenting IOP >35 mmHg
 - (OR = 2.71, $p=0.003$, 95% CI = 1.418 - 5.155)
 - HM or worse vision at presentation
 - (OR = 2.03, $p=0.022$, 95% CI = 1.109 - 3.704)
- Gender, paracentesis at diagnosis, gonioscopy at diagnosis, complaint of discomfort at diagnosis, and VA of fellow eye were not associated with glaucoma progression

Conclusions

- Acute treatment of NVG with anti-VEGF is a viable treatment strategy.
- Factors at time of initial NVG presentation to a retina specialist associated with glaucoma progression despite anti-VEGF therapy:
 - 2 or more glaucoma medications
 - Any systemic glaucoma medication
 - IOP >35
 - HM or worse vision
- Prompt referral to a glaucoma specialist especially for patients with these presenting features may be warranted

Thank you



WillsEye Physicians
Mid Atlantic Retina



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