

John Burkland, BS¹, Mae Gordon, PhD¹, James Brandt, MD², Dale Heuer, MD⁵, Eve Higginbotham, MD⁶, Richard Parrish II, MD³

Chris Johnson, MSc, PhD, Dsc⁴, John Keltner, MD², Julia Huecker, PhD¹, Michael Kass, MD¹

¹Washington University in St. Louis, ²University of California Davis, ³University of Miami School of Medicine, ⁴University of Iowa Carver College of Medicine, ⁵University of California Los Angeles School of Medicine, ⁶University of Pennsylvania Perelman School of Medicine

Purpose

- To compare the quality-of-life differences over a period of 15 years between an inception cohort of participants who developed glaucoma during the OHTS trial and control subjects with ocular hypertension alone.

Methods

Study Design

- Post-hoc analysis of data collected prospectively in the OHTS trial.

Quality of Life Measurements

- NEI VFQ-25 was administered every 2 years between 2001 and 2008, then once between 2016-2019.

Participants

- Ocular hypertensive controls:** IOP between 24-32 mmHg in one eye and 21-32 mmHg in the fellow eye, normal visual fields and optic discs in both eyes as determined by reading centers.
- POAG:** Reproducible optic disc deterioration and/or reproducible visual field (VF) abnormalities as determined by masked graders at reading centers and attributed to glaucoma by a masked endpoint committee.

Stratification of POAG Severity:

- 5 mutually exclusive groups based on glaucoma status at the time of the last VFQ administration:
 - no POAG
 - unilateral optic disc POAG
 - bilateral optic disc POAG
 - unilateral visual field POAG
 - bilateral visual field POAG

Primary Outcome:

- Change in 11 VFQ subscale scores (excluding general health) in participants who developed POAG compared to their peers who did not develop POAG.

Results

- 29% (472 of 1,636) of the participants originally enrolled in the OHTS trial met inclusion criteria for this analysis. Of those, 61.6% self-reported female, 21.5% self-reported African origin, mean age (SD) at baseline was 58.0 (7.3).

Table 1. Mean VFQ at Baseline, 6 years¹, and 15 years¹

	1st VFQ Baseline Mean VFQ (SD)	2nd VFQ 6 years ¹ Mean VFQ (SD)	3rd VFQ 15 years ¹ Mean VFQ (SD)	Difference (95% CI) between 1 st and 3 rd VFQ	Percentage of participants with decrease of 10 or more points between 1 st and 3 rd VFQ
No POAG (n=272)	93.1 (5.8)	93.1 (6.6)	92.6 (6.4)	-0.52 (-1.28, 0.25)	5.60%
Unilateral Disc POAG (N = 76)	92.0 (6.5)	92.5 (7.1)	92.5 (5.7)	0.56 (-0.99, 2.12)	6.80%
Bilateral Disc POAG (N=43)	93.8 (5.2)	91.6 (8.8)	90.6 (10.3)	-3.19* (-5.67, -0.71)	16.23%
Unilateral VF POAG (N=60)	91.9 (7.4)	91.3 (9.3)	90.6 (8.9)	-1.32 (-3.12, 0.48)	11.60%
Bilateral VF POAG (N=29)	93.7 (5.2)	91.3 (7.3)	85.0 (10.1)	-8.70** (-11.96, -5.43)	34.50%

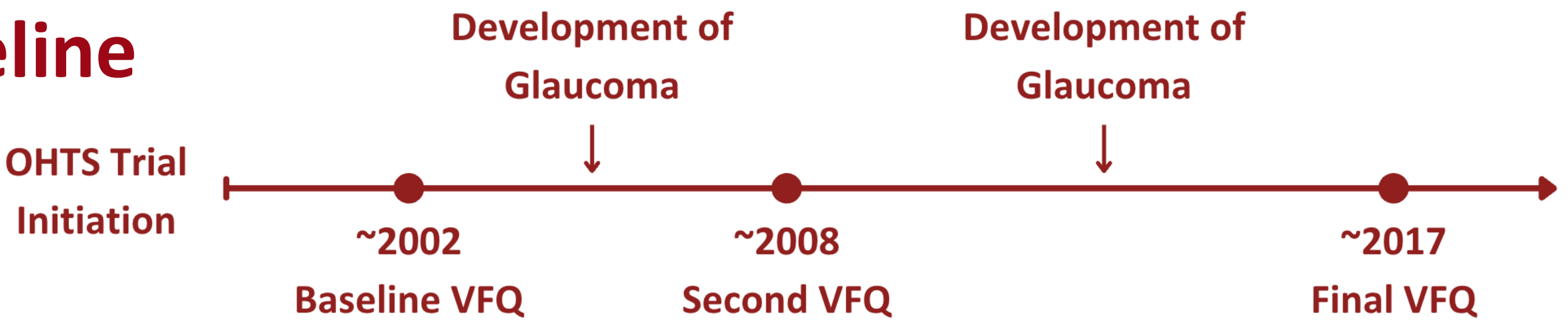
¹Median time from baseline for the second and third administration of the VFQ, respectively

* p<0.05

** p<0.001

Based on multivariate model comparing each group to the “no POAG” control group. Covariates included sex, number of non-glaucomatous eye surgeries, number of comorbidities and visual acuity

Timeline



Conclusions

- 34.5% of participants who developed bilateral visual field POAG showed a clinically significant (10-point) decrease in quality of life by the NEI VFQ-25, compared to 5.6% of control subjects over a 15-year period.
- Participants with bilateral disc POAG and unilateral visual field POAG showed more modest decreases in quality of life, while those with unilateral disc POAG had no measurable difference to controls.
- In a prospective, inception cohort of participants with baseline quality of life measurements before development of POAG, those who developed bilateral visual field POAG had clinically significant decreases in quality of life much more frequently than their peers who did not develop POAG.

References

- Kass MA, Heuer DK, Higginbotham EJ, et al. Assessment of Cumulative Incidence and Severity of Primary Open-Angle Glaucoma Among Participants in the Ocular Hypertension Treatment Study After 20 Years of Follow-up. JAMA Ophthalmol. 2021;139(5):558–566.
- Medeiros FA, Gracitelli CP, Boer ER, Weinreb RN, Zangwill LM, Rosen PN. Longitudinal changes in quality of life and rates of progressive visual field loss in glaucoma patients. Ophthalmology. 2015;122(2):293-301. doi:10.1016/j.opht.2014.08.014

Support

Supported by NEI (R34 EY023633) and an unrestricted grant from Research to Prevent Blindness.