

Outcomes of Glaucoma Cascade Screening in a High-Risk African-Caribbean Population

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INTRODUCTION

Glaucoma

- Highly heritable
- High prevalence in Afro-Caribbean individuals

Lifetime risk of glaucoma

- 22% in first-degree relatives (FDR) of individuals with glaucoma
- 2.3% in others

Cascade screening

- Systematic examination of relatives of individuals who manifest a highly heritable condition
- Not previously applied to Haitian Afro-Caribbeans with glaucoma

We examined cascade screening outcome in FDRs of young Haitians with glaucoma

DESIGN & METHODS

Approached consecutive young Haitians with open angle glaucoma

Recorded number/type of FDRs in South Florida

- Parents
- Siblings
- Offspring

Word-of-mouth recruitment for glaucoma screening

- Weekdays and Saturdays
- Free clinic

Screening visit

- Comprehensive exam
- Gonioscopy
- Pachymetry
- Visual field
- OCT-RNFL

RESULTS

Table 1. Characteristics of index juvenile open angle glaucoma patients with eligible first-degree relatives

	Index JOAG Patients (N=18)		P value
	With unscreened FDR (n = 4)	With screened FDR (n = 14)	
Age (years)	47.8 +/- 20.4	43.7 +/- 22.0	0.7477*
Female, N (%)	2 (50.0%)	8 (57.1%)	1.0000**
Age of glaucoma onset (years)	18.3 +/- 14.1	24.3 +/- 11.4	0.2789***
Proportion who are legally blind	2 (50%)	7 (50%)	1.0000**
Number of prior glaucoma procedures	2.0 +/- 1.2	1.1 +/- 1.2	0.2177***
Distance from hospital (miles)	11.0 +/- 7.2	31.6 +/- 37.5	0.0437***
Number of available FDR	4.0 +/- 1.2	4.4 +/- 2.7	0.8714***

FDR (first-degree relatives); JOAG (juvenile open angle glaucoma)

*Independent samples t-test; **Fisher's exact test; *** Mann-Whitney Wilcoxon Rank-Sum test; **Bold** = statistically significant

Table 2. First-degree relatives' relationship to index juvenile open angle glaucoma patients

Relationship	FDR of Index JOAG Patients (N=77)	
	Screened, N (%)*	Unscreened, N (%)
Sibling	5 (15.2)	28 (84.8)*
Parent	10 (52.6)	9 (47.4)*
Offspring	11 (44.0)	14 (56.0)*
Total	26	51

FDR (first-degree relatives); JOAG (juvenile open angle glaucoma)

*Chi-squared test: Sibling vs Parent, P = 0.0041, Sibling vs Offspring, P = 0.015

Table 3. Demographics of the first-degree relatives who underwent glaucoma cascade screening

	Overall	No glaucoma	Suspected glaucoma	Manifest glaucoma
	N = 26	N = 18	N = 6	N = 2
Age (years)	38.6 +/- 23.3	37.2 +/- 21.8*	29.8 +/- 18.3*	77.5 +/- 17.7*
Female, N (%)	18 (69.2%)	14 (77.8%)	4 (66.7%)	0 (0%)
<i>Relationship to index patient</i>				
Parent, N (%)	10 (38.5%)	7 (38.9%)	1 (16.7%)	2 (100%)
Sibling, N (%)	5 (19.2%)	3 (16.7%)	2 (33.3%)	0 (0%)
Offspring, N (%)	11 (42.3%)	8 (44.4%)	3 (50.0%)	0 (0%)

Kruskal-Wallis test (Dwass, Steel, Critchlow-Fligner Method for pairwise comparisons); Age comparisons – No glaucoma vs Manifest glaucoma P = 0.1414, No glaucoma vs Suspected Glaucoma P = 0.8548, Suspected glaucoma vs Manifest glaucoma P = 0.1122.

Index patients living **further** from eye care center recruited more FDRs

Siblings are the **least** likely to be screened

30.8% of FDRs had suspected or manifest glaucoma

50% of manifest glaucoma did not know their glaucoma status

33.3% of suspects had not had prior eye examinations

CONCLUSIONS

Largest cascade glaucoma screening of high-risk Afro-Caribbean Haitian population

- **High yield – 30.8% of those screened had manifest or suspected glaucoma**
- **Many had no prior eye exam despite family history of glaucoma**

Siblings were least likely to participate

- This may be the largest pool for targeted recruitment

Prior studies

- Glaucoma knowledge may increase screening participation
- Direct recruitment from physician may increase participation compared to word-of-mouth

NEXT STEPS

Future studies –

1. Direct recruitment using sharable videos
2. Increase glaucoma knowledge in the community

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