



Prevalence of open angle glaucoma in the Faroese population

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Fig. 1 Progressive vision loss in glaucoma

Background

Primary Open Angle Glaucoma (POAG) is an optic neuropathy, which undetected and untreated may lead to severe visual impairment and blindness (fig. 1).

Hallmarks for the diagnosis are specific damage to the optic nerve head and particular visual field defects (fig.2), High intraocular pressure plays a role and with familial occurrence as a predisposing factor.

The disease is most common among elderly people but may also appear early in life. Open angle glaucoma (OAG) comprises different clinical entities as primary open angle glaucoma (POAG), exfoliation glaucoma (PXG), pigment glaucoma (PG), and normal tension glaucoma (NTG).

Purpose

The Faroe Islands are home to about 50,000 genetically isolated people in the North Atlantic. The prevalence of open angle glaucoma (OAG) in the Faroese population is unknown. Consequently, we conducted a survey between Oct. 1st 2015 to 31st December 2017 to determine the prevalence of OAG in the Faroese population. We also investigated the role of known glaucoma-causing genes in Faroese OAG.

Methods

We reviewed national medical and pharmacy records, the sole sources for eye care on the Faroe Islands, to identify probable cases of OAG. Next, we prospectively confirmed diagnoses with complete eye examinations. Patient DNA samples were tested for mutations in known glaucoma-causing genes (*MYOC*, *OPTN*, and *TBK1*).

Results

We determined the prevalence of OAG in individuals 40 years or older to be 10.7/1,000 (1.07%) and highly age-related (table 1). We identified 264 patients with OAG, of whom 217 (82.2%) had primary open angle glaucoma (including normal tension glaucoma), 38 (14.4%) had pseudo-exfoliation glaucoma (PXG), and 9 (3.4%) had pigmentary glaucoma (PG) (fig. 3). Among patients receiving medications for glaucoma, nearly 50% had POAG, while the majority of the rest had ocular hypertension or secondary glaucoma. No disease-causing mutations were detected in *MYOC*, *OPTN*, or *TBK1*.

Conclusion

We determined that the prevalence of OAG in the Faroe Islands is 1.07%. The absence of *MYOC*, *OPTN*, or *TBK1* in Faroese POAG patients suggests that a different, potentially unique set of genes may be contributing to the pathogenesis of glaucoma in this population.

Table 1. Five-year age- and gender specific prevalence rates of open angle glaucoma in the Faroese population January 1, 2018

Age	Males (M)	Population	Prevalence rate/1,000	Females (F)	Population	Prevalence rate/1,000	M+F	Population	Prevalence rate/1,000
40-44	0	1,701	0	0	1,480	0	0	3,181	0
45-49	1	1,668	0.6	1	1,539	0.6	2	3,207	0.6
50-54	1	1,867	0.5	1	1,616	0.6	2	3,483	0.6
55-59	11	1,572	7.0	2	1,564	1.3	13	3,136	4.1
60-64	11	1,472	7.5	3	1,383	2.2	14	2,855	4.9
65-69	20	1,404	14.2	10	1,343	7.4	30	2,747	10.9
70-74	33	1,176	28.1	18	1,051	17.1	51	2,227	22.9
75-79	25	791	31.6	23	801	28.7	48	1,592	30.2
80-84	29	486	59.7	16	576	27.8	45	1,062	42.4
85-89	19	297	64.0	22	450	48.9	41	747	54.9
90-94	6	97	61.9	11	238	46.2	17	335	50.7
95-99	0	15	0	1	46	20.8	1	63	15.9
40-99	168	12,548	12.4	108	12,088	8.8	284	24,636	10.7

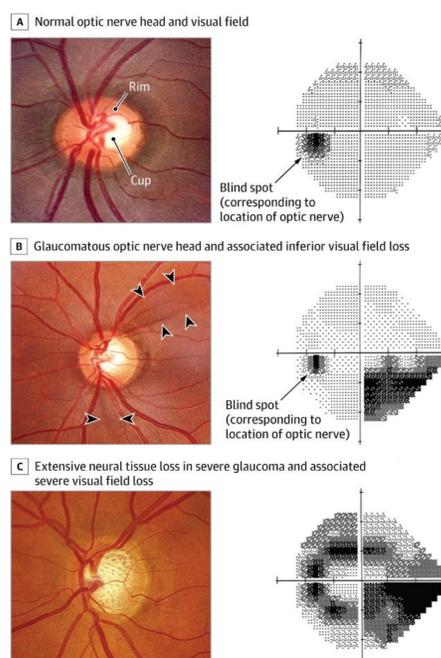


Fig. 2 Optic nerve head damage and particular visual field defects in glaucoma. A. Normal. B. Glaucomatous damage. C. Severe glaucomatous damage.

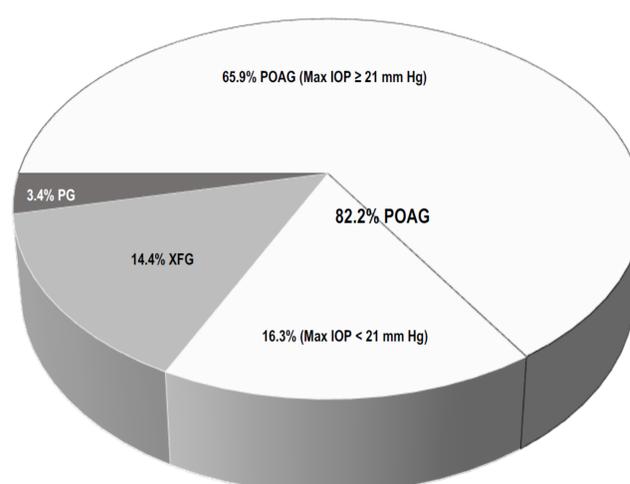


Fig. 3 The distribution of different type of glaucoma