



INCIDENCE OF PRIMARY OPEN ANGLE GLAUCOMA vs PRIMARY ANGLE CLOSURE GLAUCOMA AT TERTIARY HEALTH CARE CENTRES

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ABSTRACT

PURPOSE: To compare incidence of POAG and PACG at their 1st time presentation in OPD at M & J Western Regional Institute Of Ophthalmology

MATERIALS AND METHOD: This comparative study was conducted between August 2016 to August 2017 on all the patient between 20-60 years age; diagnosed for the 1st time with glaucoma. Detailed history with complete ophthalmological examination including TLE, SLE, Fundus examination, IOP measurement, OCT, Perimetry, Undilated Gonioscopy was done.

RESULTS: 342(50.29%) males and 338(49.71%) females. Of these 139(25.69%) presented as PACG with 99(71.22%) requiring urgent PI and 39(28.05%) of them have severe glaucomatous changes with average IOP 38.3mmHg, and 541(74.31%) as POAG with no urgent intervention and 73(13.49%) had severe glaucomatous changes with average IOP 37.5mmHg.

CONCLUSION: Incidence of POAG is more than PACG, with PACG presented with more severity

KEYWORDS : POAG, POCG

Introduction

Glaucoma is a group of disorders characterized by a progressive optic neuropathy resulting in a characteristic appearance of optic disc and an irreversible visual defect associated frequently but with raised IOP. Because of such cumulative effect of different factors, it may present in different way like

- Primary Open Angle Glaucoma(POAG),
- Normal Tension Glaucoma(NTG),
- Angle closure Glaucoma.

POAG ranks as the second most important cause of blindness after cataract, but is the most common irreversible cause of blindness worldwide.¹ A 1996 estimate by Quigley et al. estimated that by year 2000 approximately 66.8 million people would be affected by glaucoma with 6.7 million blind from the disease.² An updated study in 2006 by Quigley et al modified and projected that by the year 2020 the global burden of glaucoma would exceed 79.6 million affected with 11.2 million blind from POAG and closed angle glaucoma.³ Population studies in Europe⁴, Southeast Asia^{5,6}, and studies in the United States in Latino⁷ populations have shown much lower prevalence rates ranging from 1.7 to 1.8% in South East Asia to 2.0% in Hispanic communities. The Baltimore Eye Survey conducted in the United States also definitely showed age-adjusted prevalence rates for POAG were four to five times higher in blacks as compared with whites.⁸

The pathophysiology of this disease continues to be studied, but is characterized by a progressive optic neuropathy with visual field loss and characteristic structural changes, including thinning of the retinal nerve fiber layer and excavation of the optic nerve head, with intraocular pressure (IOP) as the principle modifiable risk factor. This study aims to determine the presentation of patient at the time of their diagnosis as a case of glaucoma for the 1st time in Out Patient Department.

Materials and Methods

Study Design

This is a cross sectional study that involved a review of 680 patients at M & J Western Regional Institute of Ophthalmology, Ahmedabad, India. All patients between age group of 20year to 60year who were primarily diagnosed with glaucoma from August 2016 to August 2017 were included. Information collected included basic demographic data, distribution of glaucoma subtypes, measured intraocular pressures, visual acuity, Slit Lamp Examination(SLE), Gonioscopic Examination, Visual Field(VF), Optical Coherence Tomography(OCT), DVT was done in NTG, Disc Examination was done and severity was assessed.

Outcome measures

The principal outcome measure was to diagnose Type of primary Glaucoma with its clinical feature at time of presentation, which required meeting specific diagnostic criteria. For the purpose of this study, secondary glaucoma cases were excluded regardless of the mechanism

Definitions and Diagnostic Criteria

The diagnosis of Glaucoma conformed to the definition from the Working Group for Defining Glaucomas in Prevalence Studies, also referred to as the International Society of Geographical and Epidemiological Ophthalmology¹⁰

All cases were either examined or confirmed by an experienced ophthalmologist with subspecialty training in glaucoma who performed Perkin's applanation tonometry, SLE done on ZEISS, Perimetry was performed on OCTOPUS, OCT performed on TOPCON, gonioscopy and disc assessment done with 20D. All visual acuity data was recorded from a standard Snellen chart at 6 m (20 ft) using the patients best corrected visual acuity (BCVA) and converted to Logmar format for standardized comparisons.

Exclusion criteria

Patients already on glaucoma medical therapy, those with prior ophthalmologic procedures including cataract extraction, laser therapy for glaucoma, or any glaucoma filtering surgery, those who have history of any ocular trauma or intraocular inflammation in past were excluded from this study.

Statistical Analysis

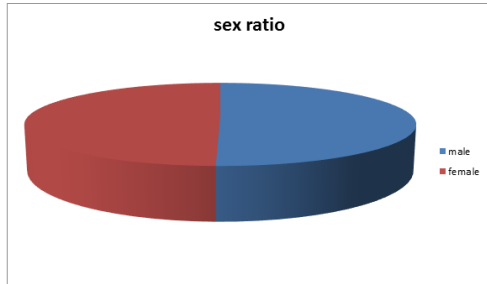
Data were entered and checked primarily with Microsoft Excel 2016. For continuous variables, the mean and the standard deviation were reported.

Results

Age and sex distribution is shown in Table 1&2. There was a clear association between increasing age and prevalence of Glaucoma with the highest incidence occurring in the 5th and 6th decade.

Table 1:- Age distribution of Patients

Age group	Male	Female	Total
20-30	28	29	57
30-40	50	53	103
40-50	108	94	202
50-60	156	152	308
Total	342	338	680

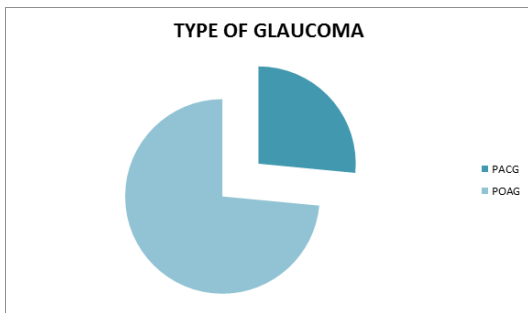


There was no significant difference between the numbers of men or women afflicted by Glaucoma with 342 men (50.29%) versus 338 women (49.71%) affected. The average age of subjects was 47.80years +/-10.16years.

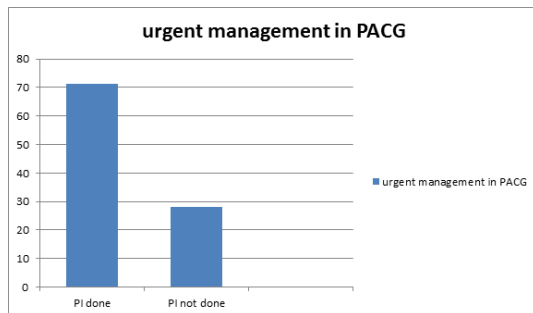
SYMPTOMS OF PATIENT

Complains		
type of complains	number of pateints	%
DOV	541	79.55882
Painless	510	75
Painful	31	4.558824
Headache	268	39.41176
Watering	259	38.08824

Among all patients 79.55% patient complains of DOV among which 75% were painless



139(25.69%) presented as PACG and 541(74.31%) as POAG



Of these PACG pts, 99(71.22%) required urgent PI

VISUAL ACUITY AFFECTED

Grading of Visual Acuity			
Category	Level	number of pts	
		RE	LE
Normal	0	225	219
low vision	1	326	328
	2	98	108
blindness	3	27	16
	4	2	7
	5	2	2

Among 680 patients 424 patients(62.35%) shows low vision in right eye and 436 patients(64.11%) in left eye. 29 patient(4.26%) shows

blindness in RE and 25 patients(3.67%) shows blindness in LE. The mean BCVA was between 6/18 and 6/24

The average IOP measured prior to any application of therapy was 35.14mmHg+/-9.628 mmHg for right eyes and 35.23mmHg +/-9.482 mmHg for left eyes.

The average measured vCDR for both eyes was 0.63+/-0.18. the average CCT for both eyes was 495.33+/-49.8. 39(28.05%) patients with PACG have severe glaucomatous changes with average IOP 38.3mmHg, and 73(13.49%) patients with POAG had severe glaucomatous changes with average IOP 37.5mmHg.

There was no right or left eye predominance.

GLAUCOMA GRADING

Among 680 patients 503 patients(73.97%) of patient are suffering from moderate grade glaucoma showing optic nerve abnormality with Visual Field abnormality in one hemifield and not within 5 degree of fixation. 127 patients(18.67%) shows severe or advance glaucoma with visual field changes in both hemifield

Glucoma Grading		
Grade	number	Percentage
Mild	50	7.352941
Moderate	503	73.97059
Severe	127	18.67647
Total	680	100

Discussion

The challenge of preventing vision loss from POAG is complicated by an earlier onset, a more aggressive course, a higher presenting IOP and vague symptoms leading to rapid visual impairment before treatment can be initiated.¹¹ The average IOP for subjects in this study was 35.4 mmHg for right eyes and 35.23 mmHg for left eyes and nearly 64% presented with low vision. These findings are better compared to similar studies in other regions^{9,12,13}.

The mean age of diagnosis in this study was 49 years, which closely resembles similar studies in the North Eastern region of Ghana (53.2 years),⁹ Nigeria (52.7 years),¹² Cameroon (53.3 years)^{14,15} and Ethiopia (51.9 years).¹⁶ The percentage of young patients diagnosed at or before 40 years of age was 175(25.73%) in this study. This was slightly higher than the 23.6% reported in the North Eastern region of Ghana, reflecting the burden this disease poses to younger individuals and the need for improved screening programs to identify at-risk individuals.

POAG comprised 2/3 of the glaucoma patients in Qatar. PACG occurred in <15% of the glaucoma patients. In Oman, the proportion of POAG and PACG was equal.²⁰ A study in western Saudi Arabia, a neighboring country, revealed that the proportion of POAG and PACG was 31% and 25%, respectively.²¹

This study did not identify a significant difference in incidence by gender, however other hospital based studies previously mentioned in the North Eastern region of Ghana, Nigeria and Ethiopia have reported nearly a 2:1 male ratio.

Limitations

Evidence was drawn from a single large outpatient referral center and is not fully representative of the entire area. IOP averages may be under or overestimated. This study excluded ocular hypertension and secondary glaucoma patients. Inter-observer and intra-observer variations in vCDR measurements and IOP assessments were present since different ophthalmologists were involved.

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