

**An Analytical Study of 133 Patients of Glaucoma**

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Conflicts of Interest: Nil

Abstract:

Aim and Objective: To analyse the background of glaucomatous patients as per their age and sex.

Materials and Methods: Diagnosed 133 patients attended the glaucoma clinic were taken as sample. Their age and sex were recorded and analysis was done.

Statistical Analysis: The data collected were tabulated and various statistical methods were applied as per requirement.

Observation and Discussion: Out of 133 patients majority 77 (57.89%) were males and rest 56 (42.10%) females. As per age maximum patients 45 (33.68%) belong to 56 – 65 year age group, followed by 34 (25.56%) and 27

(20.30%) in 46 – 55 and 66 – 75 years age group respectively. 7 (5.26%) cases belong to juvenile age group 6 – 15 year's age group. On further analysis the proportion of male juvenile cases were 6 (89.9%) in comparison to their 1 (14.2%) female counterparts.

Conclusion: The higher incidence of males in the present study may be because of social structure where females don't report early.

Recommendation: An intensive awareness campaign about various eye diseases in the community must be done at frequent intervals. So more and more patients come

forward for their routine eye checkup. Diagnosis can be done at the earliest and prompt and proper treatment can be done.

Keywords: Glaucoma, Analysis, Awareness, Diagnosis.

Introduction:

It is difficult to define glaucoma precisely partly because the term encompasses a diverse group of disorders. All forms of disease have in a common characteristics potentially it is difficult to define glaucoma precisely partly because the progressive optic neuropathy that is associated with visual field damage progresses and in which intraocular pressure (IOP) is a key modifiable factor. IOP is determined by balance between the rate of aqueous production and its outflow the latter in turn related to factors that include the resistance encountered in the trabeculum and the level of episcleral venous pressure, aqueous flow from posterior chamber via pupil into the anterior chamber from which 90% leaves the eye through trabecular meshwork which is present at the angle of anterior chamber and remaining through episcleral veins. The average IOP in general population around 16 mm of hg on applanation tonometry and a range of about 11 to 21 mm of hg 2 standard deviation either side of the average has conventionally accepted as a normal reduction of IOP

is a key modifiable element in all types of glaucoma however some patients develop glaucomatous damage with IOP less than 21 mm of hg while other remain unscathed with IOP well above this level normal IOP varies with time of day(diurnal variations) that is increased in morning and decreased in afternoon and evening,heart beat blood pressure and respiration glaucomatous eye exhibit greater than normal fluctuation the extent of which is directly proportional to likelihood of progressive visual field damage so single reading may therefore be misleading it is good practice always to note the time of day in conjunction with a recorded IOP. After cataract it is most commonest cause of blindness,Most of the patients with open angle glaucoma. Glaucoma is a Chronic progressive optic neuropathy caused by a group of eye diseases that steals sight without warning and symptoms. Primary Open angle Glaucoma is the most common type of glaucoma; Risk factors of primary open glaucoma are IOP³. The higher the IOP, the greater the likelihood of glaucoma¹¹. Asymmetry of IOP of 4 mmHg or more is also significant. ,Age. POAG is more common in older individuals, Race. It is significantly (perhaps four times) more common, develops at an earlier age and may be more difficult to control in black individuals than in whites, Family history of POAG. First-degree relatives of patients with POAG are at increased risk. An approximate risk to siblings is four times and to offspring twice the normal population risk, though surveyed figures vary Diabetes mellitus. Many studies suggest a correlation between diabetes and POAG,Myopia is associated with an increased incidence of POAG and myopic eyes may be more susceptible to glaucomatous damage. It is speculated that this may be due to mechanical factors, particularly the region of the optic disc, Contraceptive pill. Recent research suggests that long-term use of the oral contraceptive pill may substantially increase the risk of

glaucoma, perhaps by blocking a protective estrogen effect, vascular disease. A range of systemic conditions linked to vascular compromise may be associated, though clear-cut relationships have proved difficult to demonstrate consistently. Systemic hypertension, cardiovascular disease, diabetes and vasospastic conditions such as migraine have all been implicated. Poor ocular perfusion may be a risk factor for glaucoma progression,Translaminar pressure gradient. Studies suggest that a difference in the levels of IOP and orbital CSF pressure may increase the likelihood of the development and progression of glaucomatous damage, perhaps due to associated deformation of the lamina cribrosa,Optic disc area. Large discs may be more vulnerable to damage, again with some commentators speculating that causation may be linked to mechanical factors associated with laminar deformation, Ocular perfusion pressure is the difference between the arterial BP and the intraocular pressure (IOP), and has been shown in population studies to be linked to increased risk for the development and progression of glaucoma.A family history of glaucoma carries 15 to 20 folds increased risk of developing the disease. The risk is at least 4 times greater in blacks than in whites⁵.In general the patients are at risk for glaucoma development, if they have high intraocular pressure, family history of glaucoma, high myopia, age more than 45 years, use of corticosteroids for a long time and had a history of previous eye injury. Glaucoma is estimated to affect about 12 million Indians⁶. it is the third commonest cause of blindness in India Types: (1)Open angle glaucoma(primary or chronic glaucoma) caused by slow clogging of the drainage canal leads to increase in high pressure it has a wide open angle between cornea and iris it is most common form of glaucoma(2)Angle closure glaucoma caused by blocking of drainage channel

resulting in raised IOP due to closure of angle between iris and cornea(3)Normal tension glaucoma or normal pressure glaucoma leads to optic neuropathy(4)Congenital glaucoma caused by abnormal intra ocular fluid drainage from the eye as a result of blocked or defective trabecular meshwork. Most others type of glaucoma are variations of angle closure or open angle type(a) Secondary glaucoma due to eye injury inflammation, tumor or in advanced cases of cataract and also due to drugs such as steroids(b)Pigmentary Glaucoma It occurs when the pigment granules that are in the back of the iris (the colored part of the eye) break into the clear fluid produced inside the eye. These tiny pigment granules flow toward the drainage canals in the eye and slowly clog them. This causes eye pressure to rise; (c) Pseudoexfoliative Glaucoma It occurs when a flaky, dandruff-like material peels off the outer layer of the lens within the eye. The material collects in the angle between the cornea and iris and can clog the drainage system of the eye, causing eye pressure to rise; (d) Traumatic Glaucoma Injury to the eye immediately or years later may cause traumatic glaucoma. It can be caused by blunt injuries that bruise the eye (called blunt trauma) or by injuries that penetrate the eye;(e) Neovascular Glaucoma The abnormal formation of new blood vessels on the iris and over the eye's drainage channels can cause such a glaucoma. The new blood vessels block the eye's fluid from exiting through the trabecular meshwork (the eye's drainage canals), causing an increase in eye pressure It is always associated with other abnormalities, most often diabetes. It never occurs on its own; (f) Irido Corneal Endothelial Syndrome (ICE) Cells on the back surface of the cornea spread over the eye's drainage tissue and across the surface of the iris, increasing eye pressure and damaging the optic nerve. These corneal

cells also form adhesions that bind the iris to the cornea, further blocking the drainage channel
Chronic glaucoma leads to optic nerve damage, mostly affect the axons of superiotemporal and inferiotemporal fibers, produce arcuate scotoma

Materials And Methods:

The study was carried out in Department of Ophthalmology BRKM medical college, Jagdalpur. All 133 patients diagnosed in glaucoma clinic as suffering from various types of glaucomas were taken as sample. In all cases detailed history and complete examination including routine and special investigations like gonioscopy, visual field analysis and applanation tonometry were done.

Inclusion criteria:

known case of glaucoma under treatment .
patient willing to be part of the present study.

Exclusion criteria:

patient who are not willing to be part of the present study.
Patient who are not able to talk and unable to co-operate.
Institutional ethics committee permission was taken prior to the study.informed consent was taken from each and every patients

Results:

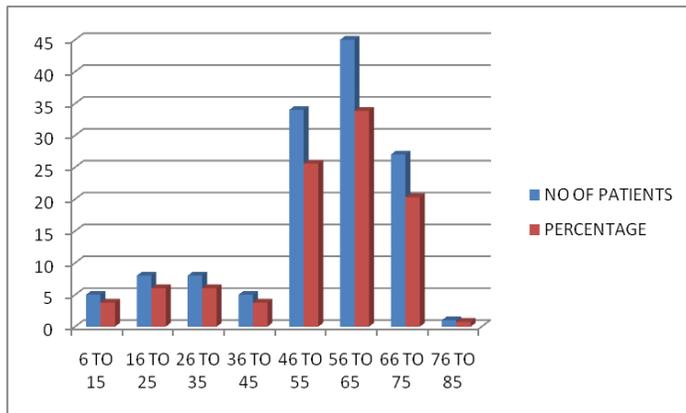
The data collected were tabulated and various statical methods were applied as per requirement.
On analysis of collected data it was noticed that out of 133 sampled patients 57.89% were males in comparision to female 42.11% counterparts.

Table 1:Sex distribution of 133 glaucomatous patients.

Sex	No. Of Patients	Percentage
Male	77	57.89
Female	56	42.11
Total	133	100

On further analysis it was observed that maximum 45(33.83%) belongs to 55 – 65 years age group. While 34(25.56%) and 27 (20.30%) belongs to 45 – 55 and 65 – 75 years age group respectively. (TABLE 2)

Table 2: Age distribution of 133 glaucoma patients



Further analysis revealed that equal proportion of 3.76% patients belongs to each 6 – 15 and 36 – 45 year age group while equal proportion i.e. 6.02% belongs to 16 – 25 and 26 – 35 year of age group. Table also shows that 0.75% patients belongs to extreme age group i.e. 76 – 85 years that may be because of late diagnosis due to lack of awareness and asymptomatic presentation.

The findings of the present study were in accordance of the findings of the study Maurice H Luntz¹ (1973) who observed that 57.1% were male glaucoma patients in comparison to their 42.8% female counterparts in Negro race. The sex incidence is more among females 68.3% than their male counterpart 31.6% in white race. Similarly, the findings of David Lotafo Robert Ritch² (1989) were more or less similar to the findings of the present study who noted that 65.1% male juvenile patients in comparison to 34.2% juvenile female patients. In present study incidence of juvenile glaucoma is 5.2% in which the proportion of male cases were 87.7% in comparison to 14.2% female juvenile glaucoma cases.

Discussion:

Out of 133 patients majority 77 (57.89%) were males and rest 56 (42.10%) females. As per age maximum patients 45 (33.68%) belong to 56 — 65 year age group, followed by 34 (25.56%) and 27 (20.30%) in 46 -55 and 66 — 75 years age group respectively. 7 (5.26%) cases belongs to juvenile age group 6 — 15 years age group. On further analysis the proportion of male juvenile cases were 6 (89.9%) in comparison to their 1 (14.2%) female counterparts. Marx-Gross, et al conducted Gutenberg health study which is a population based prospective monocentric cohort study with 15,010 participants aged 35 to 74 years to determine history based prevalence of childhood glaucoma in which 352 persons identified from medical history as having glaucoma. The heightened prevalence of glaucoma was seen over Age 45 years⁹. Paul et al conducted Hooghly River Glaucoma Study (HRGS) on prevalence of glaucoma in rural and urban eastern India population. It is a population based cross sectional study from west Bengal in which totally 14,092 individuals participated 2.7% were detected to have glaucoma in rural area and 3.23% in urban area (p<0.001) in urban population 2.10% had POAG 0.97% PACG and 0.15% secondary glaucoma In rural areas 1.45% had POAG 1.15% had ACG and 0.10% had secondary glaucoma therefore POAG IS THE most common form of glaucoma⁸. Dandona L et al conducted a population-based, cross-sectional study on the prevalence and features of angle-closure glaucoma (ACG) in an urban population in southern India¹⁰. A population-based, cross-sectional study on the prevalence and features of Open angle glaucoma in an urban population in southern India in these study total of 2522 persons (85.4% of those eligible) of all ages, including 1399 persons 30 years of age or older, from 24 clusters representative of the population of Hyderabad city. the participants underwent an interview

and detailed eye examination in which Definite POAG, suspected POAG, and OHT were present in 27, 14, and 7 participants, respectively, with age- and gender-adjusted prevalence (95% confidence interval) of 1.62% (0.77%-2.48%), 0.79% (0.39%-1.41%), and 0.32% (0.10%-0.78%) in those 30 years of age or older, and 2.56% (1.22%-3.91%), 1.11% (0.43%-1.78%), and 0.42% (0.11%-1.12%) in those 40 years of age or older, respectively from these study large proportion of POAG cases are common over 30 years of age.

Conclusion and Recommendation:

In the present study the higher incidence of glaucoma among males can be explained by the fact that due to social structure females don't report early for their ocular diseases. On analysis of the findings of present study the authors recommended that for early diagnosis and prompt treatment of glaucoma an intensive awareness campaign should be done at frequent intervals. General population must know the devastating end results of glaucoma⁷. Special attention must be paid for awareness among females by door to door survey by ophthalmic assistants and paramedical staff⁴. They should know local language, social stigma and customs of rural community. There must be easy accessibility of ophthalmic surgeons so that more and more cases come forward for their routine eye check up.

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