A STUDY OF PROFILE OF GLAUCOMA IN A PERIPHERAL MEDICAL COLLEGE IN WEST BENGAL

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ABSTRACT

BACKGROUND
The complex pattern of migration across India contributing to marked ethnic differences between different regions, the pattern of glaucoma is bound to vary in different regions of India. Apart from an epidemiological survey1 based on rural population in West Bengal, no such clinical study has been carried out in this region of India. This study of 840 glaucoma patients in Malda Medical College in West Bengal is likely to reflect the pattern of glaucoma in this region of West Bengal and helps in making definite approach towards its management.

The aim of the study is to evaluate the profile and distribution of various sub-types of glaucoma in a peripheral medical college and hospital in West Bengal.

MATERIALS AND METHODS
This prospective study was done at Malda Medical College & Hospital, West Bengal from March 2014 to September 2017 (42 months). A total of 840 patients were identified.

RESULTS
Primary Open Angle Glaucoma (POAG) was found to be the most common sub type comprising of 64% followed by Primary Angle Closure Glaucoma (PACG) which accounted for 19% of total glaucoma patients. Advanced glaucoma was found in 51.8% of POAG and 38.5% of PACG patients respectively. Secondary glaucoma was found in 10.9% of all glaucoma patients. Only 1% patients were found to be suffering from Normal Tension Glaucoma (NTG). Juvenile Open Angle Glaucoma (JOAG) constituted 3% of total glaucoma patients. Developmental glaucoma was found in 1.9% patients. A male predominance was found in all sub types except in developmental glaucoma where 12 out of 16 patients were female.

CONCLUSION
Primary Open Angle Glaucoma (POAG) was found to be the most common sub type followed by Primary Angle Closure Glaucoma (PACG) which was in contrast to profile found in other parts of India. Also a significantly low number of NTG were noted in this study. Being a hospital based study, asymptomatic and early cases might be missed as people seek attention only after having some symptoms. All these obviate the need for a population based study and glaucoma awareness programme in this region of West Bengal.

KEYWORDS
Glaucoma Sub Types, West Bengal, Peripheral Medical College.

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BACKGROUND
Glaucoma is a progressive optic neuropathy with characteristic appearance of the optic disc and specific pattern of visual field defect that is associated frequently but not invariably with raised intraocular pressure. As the visual loss is silent, sustained and very often symptomless, it goes unnoticed and undiagnosed in many cases. Glaucoma is the second leading cause of blindness responsible for 12.3% of total blindness worldwide. In India 7.9% of blindness are reported to occur due to glaucoma. These figures are likely to be doubled by 2020 AD. It has generally been assumed that the proportion of primary open angle glaucoma (POAG) to primary angle closure glaucoma (PACG) is approximately equal. But worldwide surveys on glaucoma shows a large variation in proportions of different sub-types of glaucoma in different parts of the world.

MATERIALS AND METHODS
This three and a half year study was done on patients attending the eye OPD of Malda Medical College, West Bengal. Patients were counselled and consent was taken before examination. A detailed history of past ocular trauma, eye surgery, family history of glaucoma were taken and a general examination was done to rule out diabetes, hypertension and anaemia. The workup included recording best corrected visual acuity (BCVA), slit lamp examination, gonioscopy using Goldmann double mirror gonioscope, applanation tonometry using Goldmann tonometer, stereoscopic visualisation of optic disc and posterior fundus using +90D lens and humphrey visual field analysis.
An intraocular pressure (IOP) of 22 mmHg or more was considered abnormal. Central corneal thickness was recorded to get corrected IOP. Diurnal variation was taken into consideration in patients with borderline IOP and or disc changes suggestive of glaucoma. A difference of >8 mmHg was considered to be significant.

Anterior chamber angle was classified following Shaffer's grading.5 Glaucomatous optic disc changes considered were focal notches of neuro-retinal rim, deep cupping, laminar dot sign, vessel overpass sign, saucerization of cup and asymmetric cupping. Glaucomatous field changes were paracentral scotoma, arcuate and double arcuate scotoma. Patients with developmental glaucoma were examined under general anaesthesia.

Criteria Used for Diagnosing Different Sub-types of Glaucoma are as Follows-
1. Open angle glaucoma was defined as a condition of raised IOP associated with either glaucomatous optic disc or visual field changes with open anterior chamber angle.
2. Primary angle closure glaucoma was defined as a condition of raised IOP with glaucomatous disc and field changes where angle of anterior chamber was occludable in either eye. If visual field assessment was not possible, then raised IOP, angle closure found on gonioscopy and symptoms suggestive of glaucoma (pain, redness, past history of severe ocular pain with nausea, vomiting and dimness of vision) were considered diagnostic of PACG.
3. Congenital glaucoma was defined as glaucoma with or without other developmental anomaly of eyes that can cause raised IOP.
4. Juvenile Open Angle Glaucoma (JOAG) was described as patients under 40 years of age having same features as POAG.

RESULTS
Among 840 glaucoma patients in our clinic, 538 patients were male (64%) and 302 were female (36%). The pattern of glaucoma (different sub types) as we found out is described in table 1 and the age and gender distribution in each sub type is described in table 2. POAG was found to be the most common sub type followed by PACG with POAG: PACG of about 64: 19. POAG and PACG were more common in the age group of 51-60 years while secondary glaucoma was common in 41-50 years of age group. Distribution of secondary glaucoma is described in table 3 and distribution of PACG is described in table 4.

| Glaucoma Sub-Type | No. of patients | Percentage |
|-------------------|----------------|------------|
| POAG              | 538            | 64         |
| PACG              | 160            | 19         |
| JOAG              | 25             | 3          |
| NTG               | 8              | 1          |
| Secondary glaucoma| 93             | 11         |
| Developmental glaucoma | 16      | 1.9        |

Table 1. Distribution of Different Sub Types of Glaucoma

| Age (Yrs.) | POAG | PACG | NTG | JOAG | Second. Gl. | Devlp. Gl. |
|------------|------|------|-----|------|-------------|------------|
|            | M    | F    | M   | F    | M    | F          |
| 2-5        |      |      |     |      |      | 4          |
| 6-10       |      |      |     |      |      | 8          |
| 11-20      |      |      |     |      |      |            |
| 21-30      |      |      | 25  |      |      |            |
| 31-40      | 12   | 5    | 4   |      |      |            |
| 41-50      | 40   | 52   | 18  | 28   | 28  | 18         |
| 51-60      | 199  | 131  | 73  | 32   | 41  | 6          |
| 61-70      | 68   | 16   | 3   |      |      |            |
| 71-80      | 20   |      |     |      |      |            |
| Total      | 339  | 199  | 96  | 64   | 25  | 69 24 4 12 |

Table 2. Age and Gender Distribution Among Various Sub-Types

| Type          | Male | Female | Total |
|---------------|------|--------|-------|
| Uveitis       | 25   | 10     | 35 (37.63%) |
| Pseudoexfoliation | 20   | 4      | 24 (25.8%)  |
| Lens induced  | 14   | 6      | 20 (21.5%)  |
| Post traumatic| 6    | 2      | 8 (8.6%)    |
| Neovascular   | 4    | 2      | 6 (6.45%)   |

Table 3. Distribution of Secondary Glaucoma in the Study Group

| Type of Angle Closure Glaucoma | Number of Patients |
|--------------------------------|--------------------|
| Acute angle closure glaucoma   | 61                 |
| Chronic angle closure glaucoma | 99                 |

Table 4. Distribution of PACG in the Study Group

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DISCUSSION
There is a very little data based information available on the prevalence of glaucoma in India. Besides IOP and disc features, demonstration of typical field defects on automated perimetry is needed to detect cases of POAG as well as chronic ACG. Similarly, gonioscopy is mandatory to confirm the diagnosis of types of glaucoma.3,7

Hospital based data from India had suggested that PACG was at least as common as POAG.3,8 But the prevalence of POAG (64%) found in our study was several times that of PACG (19%) with a POAG to PACG ratio of 3.4:1. This was similar to the prevalence found in Dhaka and Tamilnadu where POAG to PACG ratio were found to be 4:1 and 3.4:1 respectively. But in Vellore Eye Study9 PACG was found to be 5 times as common as POAG. The proportion of POAG and PACG found in our study was different from the proportion found in population based survey1 in West Bengal where the ratio of POAG and PACG was 10: 1 - this could be explained as our study was a clinic based study comprising of more symptomatic patients of PACG seeking medical care. Peak age of presentation was found to be 5th decade of life in this study whereas in Caucasian races, the disease presented later in life and was less severe at presentation.8 In other races the disease occurred earlier, was more advanced at presentation and resulted in blindness.10 Gender distribution of POAG is more often variable.11,12 In our study a male dominance was found with male to female ratio of about 1.7:1. Advanced glaucoma was found in 51.8% of POAG and 38.4% of PACG patients at presentation. The high proportion of advanced disease at presentation in this study was similar to that found in North India13 and was alarming and it indicated an urgent need for early detection and treatment through national programmes. 93 patients of secondary glaucoma accounted for 11% of all glaucoma in this study and all were between 41 to 60 years of age. The most common one was secondary to chronic uveitis followed by pseudoexfoliation, lens induced, trauma and neovascularisation whereas another study on profile of secondary glaucoma14 in India revealed the most common causes were post-vitrectomy followed by trauma, irido-corneal scar, aphakia and neovascularisation. A significantly low number of NTG (only 8 cases) were noted in this study which was in contrast to a Japanese survey15 where NTG was the most common glaucoma sub-type. A remarkably low number of developmental glaucoma (1%) were detected in this study which might be due to the lack of awareness among the rural population. Racial differences might be the main reason for the wide variation in the prevalence of glaucoma that was found when the results of this study were compared with the results of studies conducted in different countries. Also this study reveals some differences in profile and severity of the disease on presentation when compared to other studies conducted in different parts of our country. All these obviate the need for glaucoma awareness programmes and a population based study in this region for early detection and treatment of different types of glaucoma.

CONCLUSION
Primary Open Angle Glaucoma (POAG) was found to be the most common sub type followed by Primary Angle Closure Glaucoma (PACG) which was in contrast to profile found in other parts of India. Also a significantly low number of NTG were noted in this study. Being a hospital based study, asymptomatic and early cases might be missed as people seek attention only after having some symptoms. All these obviate the need for a population based study and glaucoma awareness programme in this region of West Bengal.

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