

Misdiagnosis of Glaucoma Based on Intraocular Pressure

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Purpose: To find misdiagnosed patients of glaucoma being treated on the basis of intracoualr pressure measurement only.

Material and Methods: Total 102 patients, 68 males and 34 females were included in the study. All patients were selected from eye OPD with labeled or suspected glaucoma over 40 years of age. To reach a final diagnosis other risk factors in addition to intraocular pressure were considered. Majority of patients were in close follow up for three years.

Results: 52 out of 60 patients were misdiagnosed as glaucomatous and 20 out of 42 patients were misdiagnosed non glaucomatous based on single reading of intraocular pressure.

Conclusion: The examining doctor should take pain in diagnosing the devastating ocular condition by taking into consideration all the risk factors. When in doubt he should not hesitate to seek the opinion of other colleagues. He should not misguide the patients.

P rimary open angle glaucoma is a chronic, painless, progressive ocular disorder which leads to irreversible visual loss by damaging the optic nerve fibers. It is very common cause of silent visual loss and is responsible for 90% of all cases of glaucoma¹. Intraocular pressure is the only risk factor which can be modified, but diagnosis based on intraocular pressure alone usually leads to misdiagnosis.

MATERIAL AND METHODS

All the patients were selected from eye outpatients department (OPD) with diagnosed or suspected glaucoma. Most cases were already diagnosed by ophthalmologists in the periphery or postgraduate trainees and were on antiglaucoma therapy. Some patients specifically attended the OPD for exclusion of glaucoma. These were on no treatment. Main complaint was non specific headache. Some presented with progressive dimness of vision, which did not improve with glasses. Such patients were thoroughly investigated on subsequent examination, correlating

the other risk factors with optic disc and visual field observations. Total of 102 patients were included in the study. 68 males and 34 females, all were over 40 years of age. Those already on treatment were asked to revisit one week after cessation of therapy. All the patients were first examined by postgraduate trainees and then by consultant ophthalmologist. Both Schiotz and applanation tonometer were used.

First group of sixty patients were already on antiglaucoma therapy. 40 males and 20 females. On first examination complete history regarding myopia, diabetes, trauma, family history and steroid drops was taken. History of previous refraction and ocular treatment was noted. All medicines were stopped and they were asked to revisit after one week. Next week intraocular pressure was checked with schiotz and applanation tonometer by postgraduate trainee and consultant ophthalmologist. Optic disc was examined with direct ophthalmoscope. In doubtful cases, patients were admitted for phasing for 24 hours. At least 6 readings were taken. In few cases where optic cup was enlarged > 0.5 CD or bilateral disparity was

Table 1: Comparison between Group I and Group 2

Group	Total Patients	Status at presentation	Misdiagnosed n (%)	Diagnosed n (%)
Group - I	60	Labeled or suspected glaucomatous	52 (87%)	8 (13%)
Group - II	42	Labeled non glaucomatous	20 (48%)	22 (52%)

Table 2: Sex ratio in Group - 1

Total patients	Diagnosis	Male n (%)	Female n (%)
60	52 (misdiagnosed)	40 (77%)	12 (23%)
60	08 (Diagnosed)	6 (75%)	2 (25%)

Table 3: Sex ratio in Group - 2

Total patients	Diagnosed / Misdiagnosed	Male n (%)	Female n (%)
42	20 (misdiagnosed)	15 (75%)	5 (25%)
42	22 (Diagnosed)	15 (68%)	7 (32%)

observed, water drinking test was performed. Second group included 42 patients. 28 males and 14 females. On first examination they were diagnosed non-glaucomatous but revisited again for reconfirmation. They were investigated and examined by same protocol as mentioned above.

RESULTS

52 out of 60 patients (86.7%) were misdiagnosed as glaucomatous. Out of these 40 were male (76.9%) and 12 were females (23%). 20 out of 42 patients were misdiagnosed non glaucomatous (47.6%) out of these 16 were male (80%) and 04 were female (20%) (Table 1,2,3).

DISCUSSION

Intra ocular pressure is most important and manageable risk factor for glaucoma treatment. However decision to treat or not to treat glaucoma, only on intraocular pressure reading may be misleading. There are many ways in which pressure reading becomes erroneous. Usually the patients are not cooperative and move eyeball during recording. Palpebral fissure may be too small due to previous trachomatous scarring. The tonometer scale may move

poorly and pressing the base against cornea usually gives false reading. Scleral rigidity may create a problem. The tonometer readings may not be correct as tonometer may be slanted, placed on sclera instead of cornea or lids and cornea may not be in horizontal position.

Doctors in busy clinics usually ignore the history of myopia, diabetes, steroid intake, family history and medication used for glaucoma². Further more fundi are not examined at the same time. So correlation is lacking. The fear of losing vision because of glaucoma compels them to undergo unnecessary prolonged medical treatment or surgery. Since increased IOP is considered to be the primary risk factor for development of glaucoma, are we over treating a lot of patients who would turnout to be normotensive or ocular hypertensive. In such circumstance it is better to stop all medications for one to two weeks to recheck IOP and to do provocative tests to confirm glaucoma³. On the other hand, if we set a target pressure of 15 mm Hg for a patient who would turnout (later) to be suffering from normal tension glaucoma, we are being lulled into a false sense of security while the patient continues to lose visual fields⁴. These are the questions, which need to be addressed before making the final diagnosis.

CONCLUSION

Misdiagnosed glaucomatous are more common than missed non glaucomatous. Patients more than 50 years of age were more misdiagnosed than younger ones. One should not depend on one parameter that is intraocular pressure. History, phasing and fundus examination are sufficient in most cases. When in doubt fields may be included in the study. One should not hesitate to seek the opinion of his senior. When in doubt intraocular pressure should be compared between two schiotz tonometers or schiotz and applanation tonometers and suspected patients may be examined many times to put them into either category and treating physician should make an effort to diagnose the disease.

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