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TREATMENT COMPLIANCE AMONG OPEN ANGLE GLAUCOMA PATIENTS AT TERTIARY CARE CENTRE IN NORTHERN INDIA.

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ABSTRACT

Introduction: Glaucoma can lead to optic nerve damage and visual field defects which can lead to blindness. So early and appropriate treatment is mandatory. However, the various ocular and systemic side-effects of anti-glaucoma drugs may affect patient compliance. Compliance with treatment is known to influence disease outcome. Non-compliance reduces treatment benefits, can affect assessment of the effectiveness of treatments and is associated with poorer prognosis. So, we carried out this study among glaucoma patients to know the incidence of non-compliance and factors influencing it. **Methods**: A detailed validated questionnaire designed to assess the patient compliance was used as a tool for the study. The study was conducted among 100 patients attending ophthalmology OPD in Pt. B.D.Sharma PGIMS Rohtak, Haryana. **Results**: Compliance to the medications was observed in 60% patients while 24% were non- complaint and 16% were over compliant. The compliance was observed better in females (75%) as compared to males (25%). It was better observed in patients of 40-59 years of age (50%) than in 60-80 years of age (30%) and 20-39 years of age (20%). Compliance was also better in educated than uneducated (58% vs 42%), married than unmarried (55% vs 45%) and in rural than urban (70% vs 30%) patients. Multiple drug therapy and increased frequency of drug usage was also shown to reduce the compliance. The most common reasons leading to non-compliance were: high cost of medicines (25%), instructions too difficult to follow (25%) lack of trust in medicines (20%). **Conclusion**: The study shows that patients` compliance was significantly related to sociodemographic factors. Multiple drug therapy and increased frequency of drug usage also reduced the patients` compliance. Moreover, education of the patients and Doctor-patient relationship also helps to improve patients` compliance.

KEYWORDS: Patients compliance, Glaucoma, Adherence, Glaucoma management.

INTRODUCTION

Glaucoma currently remains the leading cause of irreversible vision loss worldwide and its global prevalence is expected to sharply rise in the coming years. When all forms are considered, prevalence in 40–80 years is estimated to increase from 76 million in 2020 to 111.8 million in 2040.[1]

Glaucomas are distinguished by whether the drainage angle is open or occludable/closed. Within each group the condition may be primary or secondary to an identifiable cause. Primary open-angle glaucoma (POAG), the most common type of glaucoma, was estimated to afflict 57.5 million individuals in 2015 and 65.5 million are to be affected by 2020, with 5.9 million having bilateral blindness.[2,3] Primary angle-closure crisis is far less common, with sudden often very high IOP with pain, headaches and blurred vision. Secondary glaucomas represent 10-20% of all glaucomas. It is linked with high IOP from an identified underlying ocular pathology, such as inflammation, trauma, neovascularisation, or the crystalline lens.[4,5] Drug therapies for glaucoma are most commonly eye drop formulations and have five major targets within the eye; alpha adrenergic, beta adrenergic, prostaglandin and cholinergic receptors and the carbonic anhydrase enzyme.[6]

Thus not only proper treatment is mandatory for the glaucoma patients, it is also important that proper compliance to the prescribed medication is ensured. Compliance has been defined as the extent to which patients' behaviour correspond with physician's recommendations. Adherence and concordance are synonyms for compliance. Compliance may be complete, partial, erratic, nil or may be over compliance. Over compliance refers to intake of drugs by the patients more than prescribed. Many studies attributed compliance to factors like age, gender, level of education and fear of blindness. Other factors include poor communication with the health care provider, cost of eye drops, forgetfulness and difficulty in instilling the eye drops. Compliance is a multifactorial complex behavior.[7,8]

Adherence to antiglaucoma medications is difficult to measure. This is because the patient usually overestimates his compliance level and usually sticks to the prescribed regimen two to three days prior to his next follow-up visit, so that even intraocular pressure cannot be considered a clue to patient adherence.[9,10] In developing countries where socioeconomic standards are poor and the patients are not well-educated, if educated at all, it is even more challenging to measure patient compliance.[11] Diseases that are asymptomatic are more prone to poor patient compliance. Patient sometimes assumes that the side effects of their drops are responsible for worsening of the ocular condition or lead to systemic side effects. Poor compliance with treatment is known to influence glaucoma progression.[12] However, compliance to topical antiglaucoma medication has always been a major problem. This is greatly because treatment aims to stop or delay progression of the disease and there is absence of immediate visual restoration felt by the patient.[13] Furthermore, ophthalmologists may mistake noncompliance for ineffectiveness of a given antiglaucoma medication and prescribe more medications or shift to surgery, aggravating the problem with additional costs and risks.[14] Once the diagnosis of glaucomaoma is established, it is mandatory that effective treatment should be given to prevent worsening of disease and blindnessss. Patients may require life long treatment to preserve vision. Thus treatment involves rationale therapeutic intervention along with patient`s compliance to the intervention.

The goal of the current study was to determine the adherence/compliance of glaucoma patients by self-reporting questionnaires. Furthermore, we examined the relationships between the adherence behaviour and the patients' demographic data, clinical characteristics, and knowledge about glaucoma. This information may help to identify potential predictors of compliance in glaucoma therapy.

MATERIAL AND METHODS

Study area

The study site was one of the major cities in northern India, i.e., Rohtak. The population of Rohtak has good access to health facilities. There is one Health University, one Civil Hospital, many dispensaries, more than 100 pharmacy shops, traditional healers, private and other nongovernmental organizations (NGO) clinics.

Study design and population

This study included 100 randomly selected open angle glaucoma patients.

Data collection and management

A structured and pretested questionnaire was used to collect the information. Questionnaire was prepared in English and then translated to local language. Inclusion criteria were patients above 18 years of age, with a confirmed diagnosis of POAG, no previous surgical interventions to treat glaucoma and Patients willing to give a written informed consent. Exclusion criteria were patients with any structural abnormalities (such as eyelid trichiasis, entropion and scarring), presence of pinguecula or pterygium, active allergy, infection or inflammatory disease at the ocular surface, any inflammation or active structural change in the iris or anterior chamber, previous punctal occlusion or eye surgery, a positive history of refractive surgery or contact lens wear, diabetes, hypertension or other systemic, dermatologic or neurologic diseases, use of any other topical medication other than anti glaucoma within the past one month. The collected variables included sociodemographic data, complaints for the visit to hospital, when was the disease diagnosed, knowledge about the long term effects of disease in the eyes and various modes of treatment for this disease, was any surgery done or only medical therapy was given from the beginning, number of drugs in treatment regimen, instruction given by doctor regarding installation of drops, whether instructions given by the doctor were easily understood, whether drops were instilled daily at fixed time or irregular times according to instruction, how often doses were missed, whether treatment was stopped for a week or even longer, whether drops were instilled more often than prescribed. Reasons for missing the dose were inquired like whether instruction were too difficult to follow, drugs got finished, because of side effects of the drugs, whether medicine were expensive, lack of trust that drops really work, couldn't remember whether drops were put, lost prescription order, difficult to squeeze the bottle, and no assistance at home. Assessment of compliance was done by the fact that patients instilling drops daily at fixed time were given score of 5 means they had very good compliance, patients instilling daily but on irregular times were given score of 4 and were having good compliance, patients who missed one day treatment in a week were given score of 3 were called as fair compliance, those who had with two days missed treatment in a week were given score of 2 and called as having poor compliance, three days missed treatment in a week were given score of 1 and called as having very poor compliance and patients who stopped treatment for more than one week were given score of 0 and called as having extremely poor compliance. The patients having score 0-2 were taken as non- compliant.

Data analysis and interpretation

Data were entered into the computer with Statistical package for social sciences (SPSS) software and were analyzed using this software. Results are represented in the form of percentages and figures

RESULTS

Sociodemographic profile

Figure 2, 3, 4 and 5: show demographic variables among patients. The compliance was observed better in females (75%) as compared to males (25%). It was better observed in patients of 40-59 years of age (50%) than in

60-80 years of age (30%) and 20-39 years of age (20%). Compliance was better in married than unmarried (55% vs 45%) and in rural than urban (70% vs 30%) patients.

Level of Education and Knowledge about Glaucoma

Compliance was better among educated than uneducated (58% vs 42%). Regarding long term effects of glaucoma on eyes, 60% patients said that it leads to total blindness, 30% were in favour of partial blindness while 10% were of the opinion that it causes decrease in vision. 65% patients were of the opinion that main treatment of this disease is surgical and 35% named medical management as the main therapy.

Doctor- patients relationship

70% patients told that disease was not properly explained by doctors while 30% told that disease was properly explained to them. 56% of patients did not understand the instructions given by doctors while 44% patients understood the instructions. 66% patients instilled the eyedrops at fixed time according to doctors instructions while 34% did not instill the drops at fixed time.

Reasons for non-compliance

Figure 1: shows the percentage of compliance to therapy employed in the treatment of 100 primary open angle glaucoma patients. Compliance to the medications was observed in 60% patients while 24% were non-complaint and 16% were over compliant i.e instilled the drops more often than prescribed. The commonest reasons given for non-compliance were poor appreciation of the doctor's instruction on how to use the drugs (25%), medicine was expensive (25%), Lack of trust that drop realy work (20%), side effects of drugs (10%) and drugs got finished (6%) as shown in table 3.

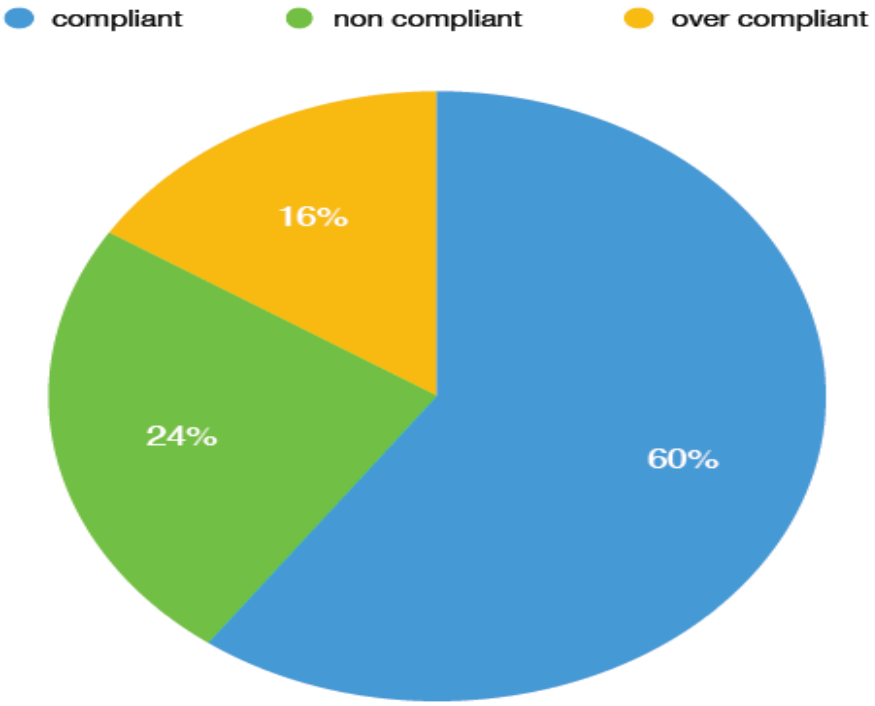


Figure 1: Percentage of compliance.

Number of Medications and Frequency of Doses

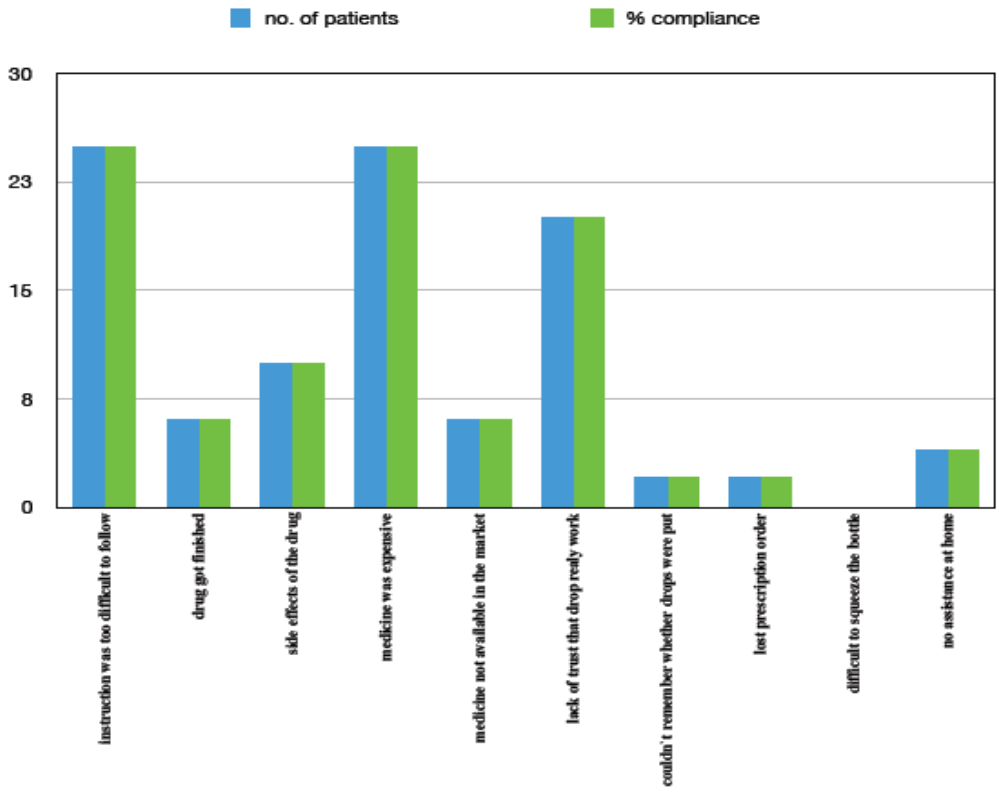
Compliance was more for one drug regime than two or three drug regime (72% vs 24% vs 4%). Compliance rate was more when the drug was taken once daily (70%) than twice daily (20%) or thrice daily (10%).

Table 1: Number of drugs.

Sr no	Regime	Patients (%)
1	One drug regime	72
2	Two drug regime	24
3	Theee drug regime	4

Table 2: Frequency of drug administration.

Sr no	Frequency	Patients (%)
1	Once a day	70
2	Twice a day	20
3	Thrice a day	10



DISCUSSION

Patient compliance to their medication regimen is essential for treating most chronic diseases; glaucoma is no exception. Poor adherence to medication regimens accounts for substantial worsening of disease and increase in healthcare costs.[15] Diseases such as diabetes, hypertension and glaucoma are most problematic because they are typically asymptomatic until the late stages. When patients are without symptoms, they may not realize the importance of daily adherence.[16] This is in contrast to diseases where patients are usually immediately symptomatic, if they do not adhere to their medical regimen, such as seasonal allergies or pain medication. Adherence to ophthalmic medications has a unique set of challenges compared to oral medications.[17] Vrijens and coworkers have described the various stages of adherence starting with acceptance, persistency, and the ability to "execute" or correctly administer a medication. Unless a patient has severe tremors, dementia, or dysphagia, the task of taking an oral medication is relatively simple and does not require observation or training by the treating physician. Although the concept of eye drop therapy is centuries old, little thought has been given to successful administration of eye drops. Eye drops are far more challenging to self-administer. Self-administering drops requires coordination, manual dexterity, eye hand coordination and good vision (all of which tend to decrease in aging glaucoma patients).[18] Studies have also shown that adding a second medication and/or increasing the complexity of glaucoma therapy and is associated with a statistically significant decrease in adherence. Poor adherence is compounded if the drop is not appropriately placed on the eye. Various medications, with various routes of administration, may further complicate the issue. However, many of our older patients are also on medications for diabetes, cholesterol, depression, systemic hypertension, osteoporosis, and hormonal replacement therapy, to name a few. The amount of administered medications may become staggering if we also consider various other homeopathies.[19]

In a study done by Onyenye et al, 57.8% of the patients were found to be good compliers though only 46.6% of respondents knew the consequence of not complying with medical therapy. Timolol had the highest compliance rate of 90% which dropped to 56.2% when it was combined with pilocarpine. The commonest reasons given for non-compliance were poor appreciation of the doctor's instruction (40.9%), drugs got finished (20%), revealing ignorance about the nature of the disease and side effect of drugs (11.3%). Multiple drug therapy and frequency of drug use was shown to reduce compliance Of 24 patients placed on pilocarpine drops Qid, only 4 patients (16.6%) were using it as prescribed. Among the other 20 patients, 2 were not using it at all, 2 were using it daily, 7 were using it b.d and 7 were using it t.d.s. only one patient for whom it was prescribed b.d was using it t.d.s.[20] The findings of our study are quite similar to above mentioned study in view of the fact that compliance to management was observed in 60% patients in our study and 57.8% in the above quoted study. Moreover compliance to one drug regimen in our study was 72% which dropped to 24% in two drug regimen as mentioned in above quoted study which

dropped from 90% with timolol to 56.2% with timolol plus pilocarpine (two drug regimen). moreover the main reasons for noncompliance in our study are similar to those study i.e poor appreciation of doctor`s instructions, drugs got finished, side effects of the drugs, multiple drug therapy and more frequency drug usage.

In a study done Nehla et al, The number of patients found to be noncompliant was 236 patients (53.6%), whereas 204 patients (46.4%) were found to be compliant to topical antiglaucoma medications. The mean age of compliant group of patients was 49.77 years (±8.92 SD) and the mean age for noncompliant group was 54.24 years (±7.93 SD). Patients showed good compliance in age group below 50 years (66.17% of compliant patients), while 60.59% of noncompliant group aged above 50 years. In the female group, 78 patients (54.6% of females) were found to be compliant. In the male group, 126 patients (42.4% of males) were found to be compliant. When studying "dropper related difficulties" and physical inability to instill drops, 87.7% of compliant patients had no reported dropper related difficulties, 11.3% reported difficulty in drop count, and 1% reported difficulty in squeezing the dropper. Of noncompliant patients, 72.9% had no dropper related difficulties, 26.3% reported difficulty in drop count and 0.8% reported difficulty in squeezing the dropper.[21] The findings of our study are quite similar to the above quoted study in view of the fact that in our study compilence better observed was 40-59 yrs of age. Where the mean age of compliant group of patients was 49.77 in the above mentioned study. Similarly in our study females were more compliant than males (75% vs 25%) as mentioned in the above quoted study where compliance in female versus males was (54.6% vs 42.4%). regarding difficulty in squeezing the dropper, as a reason of noncompliance was observed in 0.8% in above mentioned study whereas none of the patients reported this as a reason for noncompliance in our study.

CONCLUSION

Glaucoma is a preventable cause of blindness if effective and successful treatment can be provided at the appropriate time. Patient`s adherence to the medication is a constant challenge that is now recognized as an essential component of the treatment plan. There are numerous socioeconomic factors that have been associated with poor compliance, these factors must be addressed at the societal level to improve compliance. Proper instructions to the patients regarding usage of drugs, simplifying the dosage regimen and tailoring it to their daily routine lifestyle are a must. Regular follow up visits of patients is mandatory to ensure compliance. Moreover, education of the patients and doctor-patient relationship also helps to improve patient`s compliance.

Conflicts of interests

All authors have none to declare.

REFERENCES

1. H. Quigley and A. T. Broman, "The number of people with glaucoma worldwide in 2010 and 2020," British Journal of Ophthalmology, 2006; 90(3): 262–267.
2. Foster PJ, Buhrmann R, Quigley HA, Johnson GJ. The definition and classification of glaucoma in prevalence surveys. Br J Ophthalmol, 2002; 86: 238–42.
3. Quigley HA, Broman AT (2006) The number of people with glaucoma worldwide in 2010 and 2020. Br J Ophthalmol, 90: 262–267 43.
4. Quigley HA, Wesk SK, Rodrigues J et al. (2001) The prevalence of glaucoma in a population- based study of Hispanic subjects. Proyecto VER. Arch Ophthalmol, 119: 1819–182644.
5. Quigley HA, Friedman DS, Congdon NG (2003) Possible mechanisms of primary angle-closure and malignant glaucoma. J Glaucoma, 12: 167–180.
6. Kumarasamy NA, Lam FS, Wang AL, Theoharides TC. Glaucoma: Current and developing concepts for inflammation, pathogenesis and treatment. Eur J Inflamm., 2006; 4: 129–37.
7. G. C. M. Rossi, G. M. Pasinetti, L. Scudeller, R. Radaelli and P. E. Bianchi, "Do adherence rates and glaucomatous visual field progression correlate?" European Journal of Ophthalmology, 2011; 21(4): 410–414.
8. B. Sleath, S. Blalock, D. Covert et al., "The relationship between glaucoma medication adherence, eye drop technique and visual field defect severity," Ophthalmology, 2011; 118(12): 2398– 2402.
9. Kass M. A., Gordon M., Meltzer D. W. Can ophthalmologists correctly identify patients defaulting from pilocarpine therapy? The American Journal of Ophthalmology, 1986; 101(5): 524– 530. doi: 10.1016/0002-9394(86)90940-2.
10. Kass M. A., Meltzer D. W., Gordon M., Cooper D., Goldberg J. Compliance with topical pilocarpine treatment. American Journal of Ophthalmology, 1986; 101(5): 515–523.
11. Eldaly M., Hunter M., Khafagy M. The socioeconomic impact among Egyptian glaucoma patients. British Journal of Ophthalmology, 2007; 91(10): 1274–1275.
12. Kass M. A., Heuer D. K., Higginbotham E. J., et al. The Ocular Hypertension Treatment Study: a randomized trial determines that topical ocular hypotensive medication delays or prevents the onset of primary open-angle glaucoma. Archives of Ophthalmology, 2002; 120(6): 701–713.
13. Rossi G. C. M., Pasinetti G. M., Scudeller L., Radaelli R., Bianchi P. E. Do adherence rates and glaucomatous visual field progression correlate? European Journal of Ophthalmology, 2011; 21(4): 410–414.
14. Sleath B., Blalock S., Covert D., et al. The relationship between glaucoma medication adherence, eyedrop technique and visual field defect

severity. Ophthalmology, 2011; 118(12): 2398–2402.
15. Van Buskirk E. M. The compliance factor. American Journal of Ophthalmology, 1986; 101(5): 609–610.
16. G. C. M. Rossi, G. M. Pasinetti, L. Scudeller, R. Radaelli, and P. E. Bianchi, "Do adherence rates and glaucomatous visual field progression correlate?" European Journal of Ophthalmology, 2011; 21(4): 410–414.
17. B. Sleath, S. Blalock, D. Covert. The relationship between glaucoma medication adherence, eye drop technique, and visual field defect severity. Ophthalmology, 2011; 118(12): 2398-402.
18. Vrijens BB, Vincze G, Kristanto P, Urquhart J Burnier M. Adherence to Prescribed AntiHypertensive Drug Treatments: Longitudinal study of electronically compiled dosing histories. Br Med J., 2008; 336: 1114–7.
19. Robin AL, Covert D. Does Adjunctive Glaucoma Therapy Affect Adherence to the Initial Primary Therapy? Ophthalmology, 2005; 112: 863–8.
20. Onyinye CI, Sydney CE. Compliance to Medical Therapy of Primary Open Angle Glaucoma in Enugu. The Nigerian Health Journal, 11(3): 2011.
21. Hussein NB, Eissa IM, Kader AAA. Analysis of Factors Affecting Patients' Compliance to Topical Antiglaucoma Medications in Egypt as a Developing Country Model. Department of Ophthalmology, Faculty of Medicine, Cairo University, Cairo 11562, Egypt Received 3 April 2015; Revised 2 June 2015; Accepted 3 June 2015.