

Original Article**A cross sectional study of compliance and adherence of topical antiglaucoma medications in rural population of Kashmir**

Snober Yousuf, Arsalan-un-nisa, Aaliya Rasool, Tufela Shafi

Abstract:

Background : Glaucoma is a chronic, progressive disease and a leading cause of treatable, non-reversible blindness in India. Medical intervention directed towards halting the progression of disease, remains one of the mainstays of treatment for glaucoma. Hence, increased compliance with anti glaucoma medication attains utmost importance , as non-compliance can lead to further progression of the disease and ultimately vision loss.

Materials and Methods: This cross sectional study was carried out at the Department of Ophthalmology, Government Medical College, Srinagar from January -December 2022 on patients undergoing treatment for glaucoma by means of intraocular pressure lowering medications. Patients were categorized as compliant or non compliant based on their adherence to the stipulated medication protocol. A customised questionnaire with pertinent information on number of medications, duration of treatment, patient's view on disease, reasons for non-compliance, technique of drug administration, presence of caregivers as well as state of the disease as measured by visual field changes over time were documented. All data was tabulated and interpreted using SPSS software.

Results: A total of 240 patients were included in this study. The average age of patients was 60.5 years , with a male to female ratio of 1.6 :1. 86.7% of the patients had bilateral disease and the largest chunk of patients was undergoing treatment from the past 1- 3 years (75.8%). A total of 5% of the patients gave a positive family history for the disease. Compliance rates to medication were found to be as follows : Total Non Compliance- 20%, Partial Non Compliance-58% , Full Compliance- 22%. Additionally, 52% of the patients were found to be employing an incorrect method of drug administration. Financial difficulties and unavailability of the drugs at their places of residence were found to be the leading causes of non-compliance. Lack of caregivers was also associated with a higher rate of non-compliance.

Discussion: As the worlds population ages, glaucoma is becoming an increasingly important cause of blindness. Medical management remains the most widely used technique to mitigate the vision crippling changes that engulf a glaucomatous eye. Subsequently, strict adherence to anti-glaucoma medication protocol, as formulated by the treating physician, remains a simple yet an indispensable tool to halt the progression of this disease and salvage the remaining vision. Our study highlights an alarming 58% rate of partial non-compliance and a 20% rate of total non compliance, which is much more than studies conducted in other parts of the world. The unique feature of this study is highlighting financial reasons and unavailability of drugs in remote areas as the leading causes of non-compliance. Awareness regarding the importance of anti-glaucoma medication, demonstration of correct techniques of drug administration, proper availability of drugs and a positive attitude of family members/ caregivers can be essential factors to increase drug compliance in glaucoma patients and decrease the burden of ocular complications.

JK-Practitioner2023;28(1-2):13-16**INTRODUCTION**

Glaucoma, a chronic, progressive and most often asymptomatic disease is the second leading cause of blindness worldwide but the leading

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Keywords

Compliance, Adherence, Anti glaucoma medications, Quality of life

cause of preventable blindness in multiple racial groups. In India, it is the leading cause of treatable non-reversible blindness. Risk factors for glaucoma, such as older age and higher intraocular pressure (IOP), are neither specific nor sensitive enough for mass screening.[1] Primary open angle glaucoma known as sneak thief of sight, is estimated to affect almost 7 million people in India. Due to lack of symptoms in early stages of disease, patients often report late to healthcare professionals with extensive damage to optic nerve.

Glaucoma treatment requires lifelong therapy to maintain quality of life. So adherence and persistence with chronic therapies is crucial to prevent disease progression in glaucoma. Patients report high rates of adherence which are not supported by pharmacy claims analysis.[2] Given the asymptomatic nature of glaucoma and the lifelong therapeutic regimen without apparent subjective improvement, glaucoma patients are at risk of non-compliance with their treatment .[3] Recently clinicians have substituted the less judgmental word “adherence” instead of compliance in glaucoma therapy. The former term implies that patients have some control over how they use their medications and that they will use them willingly, either because they have an understanding of their disease or because they simply believe that the treatment is appropriate. For instance, patients with type A personalities may be more likely to adhere to a medical regimen if they believe it is important to prevent glaucoma from damaging their vision. The purpose of this study was to assess compliance and adherence to topical antiglaucoma medications with a self reporting method and to know barriers for lack of adherence.

METHODS

This cross-sectional study included individuals with the diagnosis of primary or secondary glaucoma as well as those categorized as “glaucoma suspects” who were undergoing treatment with intraocular pressure (IOP) lowering medication. All subjects had been examined at Government Medical College, Srinagar between January 2022 and December 2022. This study was approved by ethical committee of GMC, Srinagar. This study utilised a standardized questionnaire and direct observation by study personnel among glaucoma patients aged 40 years and above, belonging predominantly to rural areas of Kashmir. 240 consecutive glaucoma patients on medical therapy following up at the glaucoma clinic for at least 6 months were recruited. The questions included number of medications, duration of treatment, patients view on disease, reasons for non compliance to treatment and disease stability as measured by visual field changes over time by treating glaucoma specialist's observation. Factors such as presence of caregiver and number of medications with their effect on compliance were studied . The method of drug administration was observed by study personnel among patients or care-

givers. Patients who were on medications for less than six months were excluded from the study. Verbal consent was taken from each of the 240 patients participating in the survey. The collected data was cleaned, edited, and coded in MS Excel and analysed using SPSS (Statistical Package for Social Scientist; version 20, IBM USA). Descriptive statistics in the form of frequencies and percentages were then calculated.

In this study, ‘non-compliance’ stands for missing any of the medication doses in the last week (both partial and total noncompliance). ‘Partial compliance’ was defined as those missing at least one time of medication per week and (or) the inability to accurately describe the medication regimen. ‘Total non-compliance’ was defined as not taking any prescribed glaucoma medication for one week. ‘Full compliance’ meant patient's total adherence to regimen and not missing any medication for the last one week. In addition to this, improper drug administration technique was also noted, whether the patient touched the drug dispensing container right up to the tip to the eye or if any of the medication drops missed the eye.

In this study, mean defect in best eye on visual field was considered mild [better than 6 Decibel (dB)], moderate (6 to 12 dB) and severe (worse than 12 dB). The doctor's perception of disease stability was categorised as stable or unstable/progressing .A patient was defined as being stable if he had stable optic disc findings on subsequent disc photographs, no visual field progression, and IOP maintained in the target range. The disease was termed unstable/progressing if the patient had progression of disc findings (progressive cupping of optic disc, broadening or deepening of retinal nerve fibre layer defects or disc haemorrhage) with progression of glaucomatous field defects in visual field associated with IOP higher than the target pressure.

RESULTS

A total of 240 patients were interviewed. The average age of the participants was 60.5 years, ranging from 30 to 90 years. 90% of the participants were over the age of 50 years and 62.5% of them were males. All the participants were illiterate and belonged to socioeconomic class III or IV of Kuppaswamy scale. 86.7% of cases had bilateral involvement of glaucoma in their eyes. Most of the patients were on treatment duration of 5 years or less (n=240) and 10% had a family history of glaucoma (Table 1).

125 patients (52%) were observed to conduct improper drop administration technique. 76 patients (60.8%) touched the drug dispensing vehicle with the eye while instilling the medication and 49 patients (39%) missed the eye. Around 58% of the interviewed patients mentioned missing at least some form of the prescribed medication in the past 1 week with 20% patients having total non compliance (Figure 1). The most cited reason for noncompliance was drug shortage due to high cost followed by unavailability

of drugs in the rural areas (Table 2). Non compliance was higher in patients who did not have a caregiver at home.

Table. 1 Sociodemographic characteristics of participants

Sociodemographic Data	Number (%)
Age	
30-40 Years	16 (6.66%)
41-50 Years	54 (22.50%)
51-60 Years	72 (30.00%)
61-70 Years	42 (17.50%)
71-80 Years	32 (13.30%)
≥81 Years	24 (10.00%)
Sex	
Male	175 (73%)
Female	65 (27%)
Socioeconomic Class	
III	190 (79.20%)
IV	50 (20.80%)
Laterality	
Bilateral	208 (86.70%)
Unilateral	32 (13.30%)
Duration of Treatment	
6 months -1 year	18 (7.50%)
1-2 Years	97 (40.40%)
2-3 Years	85 (35.40%)
4-5 Years	40 (16.70%)

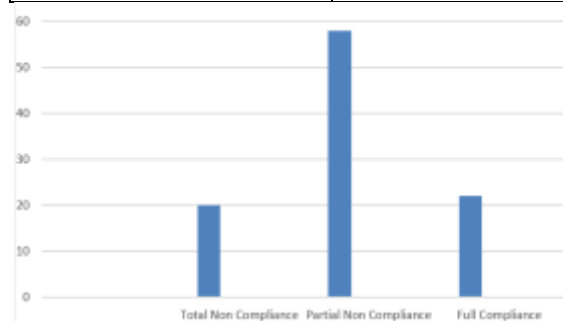


Figure1 Level of compliance to anti glaucoma medications (n =240)

Table. 3 Reasons for non compliance

Reasons	Number of patients (%)
Cost of drugs	64 (45.7%)
Unavailability of drugs at native place	28 (20%)
Ran out of drops	24 (17%)
Discomfort	15 (10.7%)
Forgetfulness	09 (6.4%)

DISCUSSION

Glaucoma is becoming an increasingly important cause of blindness, as the world's population ages. In India alone, 11.2 million people aged 40 years and above are affected with glaucoma and 1.2 million are blind due to glaucoma. Lack of glaucoma awareness and late presentation adds hugely to the burden of this disease. The only treatment modality available is lowering of the intraocular pressure with medical or surgical management which halts the progression of disease but the damage to the optic nerve is irreversible. In such circumstances, the need for increasing compliance of antiglaucoma medications has become imperative to manage this condition, because non-compliance to antiglaucoma therapy has long been recognised as an important limiting factor in the medical management of glaucoma.[6] Patients with glaucoma having lower rates of compliance are presumed to be at greater risk of developing visual loss.[7]

This cross-sectional descriptive study was done to evaluate factors affecting compliance to antiglaucoma medications among a sample population belonging predominantly to rural areas of Jammu and Kashmir . In our study, around 58% of the interviewed patients reported partial non-compliance and 20% reported total non compliance with their antiglaucoma medications. Earlier studies done in India have shown a high percentage of non-compliance among patients with glaucoma, which still holds true. However, in other developed and developing countries of Asia, the non-compliance rates have been found to be varied: Israel (29%), Hong Kong (63.4%), Taiwan (75.8%), Saudi Arabia (19.4%) and Pakistan (65.5%).[8-12]

In our study, cost of the drugs was a major cause of non-compliance in 45.7% patients, which is contradictory to earlier studies done in India, where forgetfulness was the major cause of noncompliance. The reason for that can be attributed to the fact that this study was done only on rural population belonging to low socioeconomic status. Another reason was unavailability of drugs at their respective places (20% patients) and the patients having to wait for their scheduled visit to the tertiary hospital to procure the drug and subsequent missing of doses. So, the patients should be given an option of surgical treatment even in the early course of disease to reduce the financial burden and preserve vision. Improper drop administration technique was seen in 52% patients especially in older people who did not have a caregiver at home. Health professionals should demonstrate the proper technique to the patient as well as to the caregiver, whenever available. We need to focus on patient education and community awareness on glaucoma in our country.[13]Due to a high level of non compliance, as seen in our study, there is a need to pay more attention to anti glaucoma medication adherence in patients attending glaucoma clinics. Making patients and their family members aware about the disease and its sequelae, creating a

strong family support system and establishing a healthy doctor patient relationship can help to

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