

Adherence to Topical Antiglaucoma Medications in a Rural Underdeveloped Community

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ABSTRACT

Objective: To evaluate the prevalence of noncompliance to antiglaucoma drugs and to figure out the common causes for this nonadherence.

Methods: A cross sectional study was conducted at Department of Ophthalmology Peoples University of Medical and Health Sciences Hospital, Nawabshah, during January to March 2018. For this purpose, a questionnaire was prepared and filled by the researcher by collecting information from 100 consecutive glaucoma patients already on antiglaucoma medications for at least six months. The data collected was statistically analyzed.

Results: Out of 100 patients, 42 patients were found to be noncompliant, 37 were partially compliant and 21 were compliant with medicine. The reason for noncompliance being high cost of medication(36%), unable to remember the dose(18%), side effects presumed or actual(17%), Illiteracy and ignorance of disease details(16%), Comorbid systemic disorder(8%), and multidrug regimen and frequency of dosing(5%).

Conclusion: In a poor community, compliance to antiglaucoma medication is very low and directly affected by the financial status of patient. Responsibility of an ophthalmologist does not ends up by prescribing a list of medications to glaucoma patient. He has to consider all the noncompliant factors that can affect that particular patient outcome and ensure the drug adherence by alleviating those factors.

Key Words: Noncompliance, Partial Compliance, Antiglaucoma Drugs.

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INTRODUCTION:

Prevalence of overall blindness in Pakistan is 2.7% i-e 1,140,000¹. Glaucoma is found to be 4th commonest cause of blindness in Pakistan². Primary open angle Glaucoma is the commonest variety found in Pakistan followed by primary angle closure glaucoma³. Raised intraocular pressure not mandatory for glaucoma is still the most important risk factor for progression of glaucoma⁴.

Topical medications to reduce intraocular pressure slow the progression of optic nerve damage⁵. Despite the single drug treatment as initial therapy for newly diagnosed glaucoma cases, the new trend of multidrug regimen as a part of advanced and intensive glaucoma therapy is getting popularity globally but the practice have to be watched carefully as drug compliance is the major determining factor for managing glaucoma before deciding low efficacy of single drug therapy⁶.

Compliance by definition is the patient's adherence to the doctor's instructions for a given period. Noncompliance to antiglaucoma medication is directly related to glaucoma progression⁶. Many international studies prove 20-64% noncompliance of antiglaucoma medications⁷.

Noncompliance to antiglaucoma medication

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most important risk factor for progression of glaucoma⁴. It is a multifactorial complex behavior. Following are the factors that generally effects compliance to antiglaucoma medications:

1. **Age and Gender.** Studies have proved that females are more compliant while males are less compliant to antiglaucoma medications. Similarly patient's age less than 40 years are more compliant while over 40 years are less compliant⁸.

2. **Level of education and knowledge about glaucoma:** The compliance to medications among literate persons is greater than uneducated persons⁹.

3. **Family history of glaucoma:** Patients with family history of glaucoma are more compliant to antiglaucoma medications as compared to negative family history¹⁰.

4. **Multidrug therapy:** Patients who are on polytherapy antiglaucoma medications are more prone to noncompliance as compared to patients on single drug therapy¹¹.

5. **Cost effectiveness of drugs:** The higher the cost the lesser the compliance¹².

All the above Factors effecting antiglaucoma drug compliance have ethnical variation. We therefore decided to conduct a study that will estimate the compliance to antiglaucoma medication as well as will help in highlighting the factors due to which patient quit entirely or became partially noncompliant to antiglaucoma medications.

METHODS:

A cross sectional study was carried out in the department of ophthalmology Peoples University of Medical and Health Sciences Hospital, Nawabshah, during January to March 2018. 100 consecutive glaucoma patients who were already on topical antiglaucoma medications for at least 6 months. A questionnaire was prepared and filled by the researcher for every patient on antiglaucoma medication. The questionnaire included:

1. Biodata of the patient.
2. Socioeconomic status.
3. Glaucoma since when?
4. Family history of glaucoma.

5. Level of education.

6. Number of antiglaucoma medications.

7. Daily dose.

8. Any missed dose. (How many doses missed per week)?

9. Cause of missed dose:

- a. Forget the dose.
- b. Cost of medicine
- c. Inconvenient dosage timings
- d. Multiple drugs
- e. Irregular doctor visits
- f. Comorbid systemic disorder
- g. Least knowledge of disease.

The standard of partial noncompliance was missing of at least one dose per week and total noncompliance was defined as not taking any antiglaucoma medication for one week. Patients having history of acute congestive glaucoma and psychotic illness were excluded from the study. Written Consent was taken from all the 100 patients. All the data was collected and analyzed using SPSS version. P value of less than 0.05 was considered as significant.

RESULTS:

A total of 100 patients were interviewed. The age of the patients varied from 20 to 70 years with average of 45 years. Sixty two out of 100 (62%) patients were male and remaining were female (38%). Seventy three out of hundred (73%) patients were Illiterate. Seventy-nine out of hundred belonged to lower class, 18 to middle class and only 3 belonged to upper class. Sixty three out of 100(63%) patients had bilateral glaucoma while only 8(8%) had family history of glaucoma.

About 37% of the study population responded of at least missing one dose/week, while 42% of the patient showed total noncompliance (Fig-I).

The reasons for noncompliance/partial compliance were inquired in the questionnaire. It was found that most of the patients left medicine due to high cost of medication(36%), while the least number of patients(5%) left medicine due to the number of medications(multidrug instead of single drug therapy) being prescribed (Table-II).

Table-I: Sociodemographic Data

S.No.	Factor	No. %
1.	Age	
	20-30 yr	8
	31-40 yr	12
	41-50 yr	24
	51-60 yr	34
	More than 61 yr	8
2.	Sex	
	Male	62
	Female	38
3.	Education	
	Nil	73
	Graduate	8
	Intermediate	5
	Matric and low	14
4.	Socioeconomic class	
	Upper	3
	Middle	18
	Lower	79
5.	Eyes Treated	
	Right	17
	Left	20
	Both	63
6.	Duration of Treatment	
	Less than 1 year	46
	More than 1 year	54

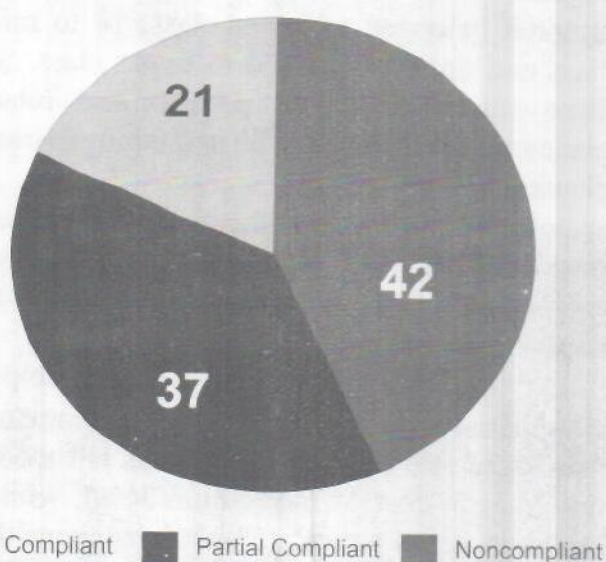


Figure. I: Level of Compliance

DISCUSSION:

It has been well established that medical therapy reduces the progression of glaucoma by at least 60% regardless of the mode of action¹³. Chronic disease management is directly affected by the compliance to its therapy. The rule also implies on glaucoma where visual prognosis becomes worse due to noncompliance to its treatment modalities¹⁴.

Glaucoma causes irreversible blindness and poses a major morbidity factor onto our community. In Pakistan the reasons for getting blind due to glaucoma has been investigated and found that late presentation is the major culprit for causing blindness due to glaucoma (26%) followed by use of ineffective medication (22.4%), noncompliance to antiglaucoma medication (19.2%), Misdiagnosis (13.6%), poor socioeconomic status (8.4%), refusal to surgery (10.4%)¹⁵.

The demographic, and socioeconomical state of our country is different from the western countries. This factor has an impact on the causes of poor compliance for drug use. The poor socioeconomic state, in availability of health insurance, illiteracy and other social factors directly are related to noncompliance to antiglaucoma medications in our community. Our rationale of study was therefore to uncover the reasons for noncompliance/partial compliance to antiglaucoma medications. This would help to identify and alleviate those reasons and hence reduce the burden of visually disable persons in the community. In this study, 100 glaucoma patients were interviewed and questionnaire filled to discover the reasons for non/partial compliance to antiglaucoma medication in a rural based community in the vicinity of District Shaheed Benazirabad.

Factors with variable existence have been found in different studies for compliance to antiglaucoma medications. Our study showed 79% of patients to be partially compliant or noncompliant to antiglaucoma medication. This was in comparison to similar studies carried out in other countries as Hong Kong(63.4%)¹⁶, Taiwan(75.8%)¹⁷, Saudi Arabia(19.4%)¹⁸,

Table-II: Reasons for Partial Compliance / Noncompliance

S.No.	Reason of Partial / Noncompliance	Partial Compliance	Noncompliance	Total
1.	Cost of medicine	16%	20%	36%
2.	Forgetfulness	15%	3%	18%
3.	Side effects	5%	12%	17%
4.	Ignorance of disease details	7%	9%	16%
5.	Co morbid systemic disease	5%	3%	8%
6.	Multidrug therapy and frequency of drugs used	3%	2%	5%

Egypt(53.6%)¹⁹, Dutch(27.3%)²⁰, UK(23%)²¹.

In our study cost of medicine was the major factor (36%) responsible for partial/total noncompliance to antiglaucoma medication. This is in accordance with a similar study carried out in Nigeria, where cost of medicine was the most prevalent factor in drug noncompliance²². On the other hand western countries like America have different drug delivery system to patients (Medical insurance)²³, due to which cost effectiveness is not an issue as highlighted by Lacey et al⁷ who pointed the main reason for noncompliance to be the lack of proper education.

Dreer et al²⁴ and Taylor²⁵ reported forgetfulness as the major factor for noncompliance in their study. Forgetfulness ranked second(18%) among the most prevalent factors of noncompliance in our study in comparison to Ribeiro et al²⁶ who also showed 76.15% of patient not using medication due to forgetfulness.

Side effect of medications was the third(17%) common noncompliance factor in our study as compared to 10% as found by Taylor et al²⁵. In our study, lack of knowledge to disease process and its complications (16%) was next common factor for noncompliance. This result was supported by other studies of past by Norell(1979)²⁷, Rendell(2000)²⁸ and Okeke (2009)²⁹ who deduced the idea that compliance to antiglaucoma medication can be improved by transferring details of glaucoma through education to patient.

Patients having other comorbid systemic

disease (8%) were next common factor for noncompliance in our study. In a study carried out in Egypt 24.6% of noncompliant patient had systemic comorbidity¹⁹.

Lastly, multiregimen therapy and more frequency of drug instillation was associated with noncompliance (4%) in our study. This was further supported by a Nigerian study²² which claimed single drug therapy is strongly associated with compliance as compared to multidrug therapy.

Multiple antiglaucoma medications and complex regimen poses a negative effect on drug compliance as proved by studies³⁰.

Combination therapy and prostaglandin analogues are nowadays used very frequently in our health sector, these impose high burden on patients pockets. In contrary beta blockers used in the past are very cheap mode of treatment. It therefore imparts a high responsibility on the consultant to make a right choice for the patient keeping in view the financial status of the patient. Chronicity of glaucoma and failure to have dramatic improvement in visual status by treatment further deteriorates the scenario. Again, it is the duty of the treating doctor to explain the effects of glaucoma on vision and importance of compliance to medication. Further if noncompliance cannot be alleviated it is better to go for laser or surgical options for treatment of glaucoma in order to preserve the remained vision. Our study results may prove to be a guideline for upcoming consultants to emphasize on the factors of noncompliance in our community and try to alleviate them during the treatment period.

CONCLUSION:

Partial/Noncompliance of antiglaucoma medication is a main culprit for treatment failure in glaucoma. Failure to buy medicine regularly is a major factor for noncompliance in our community. It is therefore recommended that government should launch a glaucoma alleviation program like Tuberculosis and HIV programs in which constant supply of medication and knowledge about glaucoma with its consequences on vision be delivered at root level of health provision.

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