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Ophthalmology

EVALUATION OF EYE DROP INSTILLATION TECHNIQUE IN GLAUCOMA PATIENTS

Varanasi. Hima Bindhu

ABSTRACT To evaluate the technique of eye drop instillation in glaucoma patients and the factors associated with a good technique. A Cross Sectional Study of 100 participants using self administered topical medication for glaucoma.All patients were asked to instill artificial tear solution in one eye as they would do at home.The procedure was observed and assessed.A comprehensive score system associated with the technique of instillation of eye drops was used to quantify instillation technique and assess factors such as demographic and clinical characteristics.52% of patients had a poor drop technique, 12% missed the eye while eye drop instillation, 16% touched the tip of the bottle to the bulbar conjunctiva or cornea,and 18% touched eyelid or lashes with the tip of the bottle. Eye drop instillation technique in patients of glaucoma requires much attention from eye care practitioners during their follow- up visits and they should be educated regarding technique.

KEYWORDS : Eye Drop Instillation Technique, Glaucoma, Good Technique

INTRODUCTION

Glaucoma is a chronic eye disease causing blindness in millions of people worldwide .

Ocular hypotensive eye drops are the most common treatment for lowering the intraocular pressure and to slow the progression of the disease.

During lifelong follow-up, a daily, correct administration by the patient is required.

However, it is reported nearly half of the patients with glaucoma could not use the eye drops properly.

Unlike oral medicines, eye drops require patients to use proper technique for successful medication administration.

This requires not only instilling a single drop accurately into the conjunctival cul de sac of the eye ,but also without contacting eye drop container with the ocular surface or adnexa.

Poor eye drop instillation in adherence not only leads to reduced treatment effectiveness but also increases costs in such chronic disease.

Systemic side effects, infection, or trauma can also be induced due to overdose or contacting the eye drop container with the eye.

Accordingly, this study aimed to explore the status of patients in busy clinical setting of a developing country and to evaluate the determinants of the drop instillation skill.

AIM OF THE STUDY

To evaluate the technique of eye drop instillation in glaucoma patients and the factors associated with a good technique.

MATERIALS AND METHODS

STUDY DESIGN:

HOSPITAL BASED CROSS SECTIONAL STUDY

STUDY PERIOD: MARCH 2019 TO MAY 2019

STUDY SOURCE: PATIENTS ATTENDING TO GLAUCOMA CLINIC IN DEPARTMENT OF OPHTHALMOLOGY, GOVT REGIONAL EYE HOSPITAL, VISAKHAPATNAM.

SAMPLE SIZE: 100 patients.

INCLUSION CRITERIA

Subjects with diagnosis of glaucoma

Patients aged over 18 years old,

Patients using self-administrating eye drops with no compliance aids more than 6 months,

Patients having better visual acuity no less than 20/200 in either eye,

Patients using more than one topical hypotensive medications in one or both eyes**.**

EXCLUSION CRITERIA

Patients having disability in communication or physical impediments to eye drop use

METHODOLOGY

Eye drop instillation technique—subjects were first escorted to an exam room and instructed to instill a 5 ml sterile artificial tear solution just as they usually did at home.

They were free for a second attempt while they were not satisfied with their first attempt but no prompting was given.

The right eye was assigned if the patients had prescribed eye drops for both eyes.

The entire process was observed .

Skill score system was based on previous studies.

Perfect instillation technique was defined as being to instill a single drop into the conjunctival cul de sac on the first attempt without touching one's eyelid or face.

Participants were also asked to recall whether they had any instruction on skills of instilling eye drops previously, and if so, from whom.

Gender, age, race, knowledge of using eye drops, and instruction history were associated with total skill score

Table 1: Scheme used to grade eye drop instillation technique:

Description of technique	Score
Good technique, on target, and no contamination	5
Awkward technique, on target, and no contamination	4
On target but contaminates by touching the bottle tip to the lashes or lid	3
On target but contaminates by touching the bottle tip to bulbar conjunctiva or cornea	2
Not on target, and no contamination	1
Not on target and contaminates the bottle tip by touching the eye, eyelid, or lashes	0

RESULTS

Total number of cases – 100. Males were 54, females – 46, mean age was 54.23 years.

Table 2: Knowledge of using drops:

Interval between each drop	9%
5 minutes	90%
10 minutes	1%
30 minutes	

Press dacrocyst area (Punctal occlusion)	
Yes	2%
No	98%
Having training of using eye drops	
Yes	**3%**
No	**97%**
Education method	
By doctor	90%
By nurse	8%
Reading education brochure	2%
Education time	
5 minutes	52%
10 minutes	46%
30 minutes	2%

Table 3: Eye drop instillation technique evaluation

Technique Of Eye Drop Instillation	Percentage
Good technique and no contamination	2%
Awkward technique, on target, and no contamination	52%
On target but contaminates by touching the bottle tip to the lashes or lid	18%
On target but contaminates by touching the bottle tip to bulbar conjunctiva or cornea	16%
Missed eye while eye drop instillation	12%

DISCUSSION

Glaucoma is a slowly progressive eye disease, and prescribed glaucoma regimen adherence has long been an issue with glaucoma patients Improper administration of eye drops is often of a variety of unintentional noncompliance and under reported.

Unawareness is not only from patients but also from eye care providers especially in busy clinical practices.

Approximately 80% of patients instill their own eye drops by themselves and mostly, no delivery aids are adopted.

Our study indicates that only 54% patients managed to successfully instill eye drops into conjunctival sac .

In a similar study, Dietlein et al. reported that only 57% patients managed to instill eye drops in the conjunctival sac.

Our study showed 18% patients got contamination by contacting tip of bottle to eye lashes/lids on their first attempt to instill the drops.

16% patients got contamination by contacting tip of bottle to bulbar conjunctiva/cornea.

12% patients missed the eye while instilling drops.

The mean age according to this study is 54.23years.

Most patients (90%) controlled the interval between eye drops more than 10 minutes

2% patients knew to press dacrocyst area after instilling the eye drops. Only a small part of patients (3%) have training experience of using eye drops, of which mostly (90%) by doctor in the hospital.

CONCLUSION

This study clearly shows that a vast majority of glaucoma patients are not correctly instilling eye drops.

This can lead to serious consequences on the quality of life of the patients.

It also highlights the importance of patient education with regard to self instillation of eye drops whenever glaucoma topical medications are prescribed and a check on this by the eye care providers during follow-up visits.

REFERENCES

1. A. J. Tatham, U. Sarodia, F. Gatrad, and A. Awan, "Eye drop instillation technique in patients with glaucoma," Eye, vol. 27, no. 11, pp. 1293–1298, 2013
2. D. M. Carpenter, R. Sayner, S. J. Blalock et al., "The effect of eye drop technique education in patients with glaucoma," Health Communication, vol. 31, no. 8, pp. 1036–1042, 2016.
3. R. Gupta, B. Patil, B. M. Shah, S. J. Bali, S. K. Mishra, and T. Dada, "Evaluating eye drop instillation technique in glaucoma patients," Journal of Glaucoma, vol. 21, no. 3, pp. 189–192, 2012.
4. T. S. Dietlein, J. F. Jordan, C. Lüke, A. Schild, S. Dinslage, and G. K. Krieglstein, "Self-application of single-use eyedrop containers in an elderly population: comparisons with standard eyedrop bottle and with younger patients," Acta Ophthalmologica, vol. 86, no. 8, pp. 856–859, 2008.
5. J. C. Tsai, "A comprehensive perspective on patient adherence to topical glaucoma therapy," Ophthalmology, vol. 116, no. 11, pp. S30–S36, 2009.
6. M. A. Kass, E. Hodapp, M. Gordon, A. E. Kolker, and I. Goldberg, "Part I. Patient administration of eyedrops: interview," Annals of Ophthalmology, vol. 14, no. 8, pp. 775–779, 1982.
7. J. C. Tsai, C. A. Mcclure, S. E. Ramos, D. G. Schlundt, and J. W. Pichert, "Compliance barriers in glaucoma: a systematic classification," Journal of Glaucoma, vol. 12, no. 5, pp. 393–398, 2003