

Dropout of Newly Diagnosed Glaucoma Patients from Follow-up Schedule

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Purpose: To evaluate the impact of verbal counseling alone and verbal with structured written counseling in prevention of drop out of glaucoma patients from follow-up schedule.

Study Design: Descriptive study.

Place and duration of study: Green Eye Hospital Dhaka, Bangladesh for 18 months, from July 2015 to December 2016.

Material & Methods: During the study period, 300 newly diagnosed glaucoma patients were enrolled. They were divided into two groups. Group: A & B. Each group comprised of 150 patients. Group: A patients were verbally counseled and structured written counseling brochures were given and Group: B patients were counseled only verbally.

Results: We compared the dropout during follow-up between the two groups. There was significant difference between the two groups (The chi-square statistics was 9.8182. The p value was 0.001728). Moreover, the drop out of elderly patients (>50 years) was less than the patients with < 50 years of age. When there was positive family history of glaucoma dropout was significantly less. In group: A, (p-value was 0.029932, in group B, p value was 0.00011 using chi square test).

Conclusion: Drop out during follow up in newly diagnosed glaucoma patients is less if they are given written brochures with verbal counselling. Drop out of elderly glaucoma patients is lesser than the younger age group.

Key words: Glaucoma, glaucoma counseling, intra ocular pressure

Glaucoma is a form of disease in which there is a characteristic potentially progressive optic neuropathy that is associated with visual field loss and in which IOP is a key modifiable factor^{1,2}.

Because it often goes undetected in its early stages, glaucoma is called the "sneak thief of sight." It is estimated that nearly half of the Americans who currently have glaucoma are unaware of their condition³. Glaucoma prevalence is relatively high in Bangladesh. Prevalence of definite glaucoma was 2.1%. The prevalence of definite and probable glaucoma was 3.1% in subjects of the same age⁴. It is the second most common cause of blindness^{5,6}.

Once nerve fibers die and visual function is lost, it cannot be recovered⁷. Treatment can only help preserve remaining vision; hence it is imperative to detect the disease in its earliest stage⁸. Often, glaucoma is asymptomatic. Therefore, people suffering from glaucoma may lose vision without knowing it. Regular eye examinations are an important way to detect glaucoma⁹.

After the diagnosis of glaucoma, about half of the patients do not come for follow up visit. Most prevalent barrier to being lost to follow up is the belief that there is no problem with one's eyes¹⁰. This sort of belief is irrespective of age, gender, economic status, level of education. If patient has, any idea about

glaucoma such as when there is positive family history of glaucoma, dropout of follow up is reduced. Most probably it is due to the awareness about the disease. With this concept, we prepared a brochure, which contained some preliminary idea about glaucoma. The brochure contained general concept of glaucoma for the patients and their family and answers to the most frequently asked questions. If the family members have some knowledge about the disease and its ultimate fate, they can persuade the patient for regular follow-ups. The study was undertaken to evaluate the impact of verbal counselling alone and verbal with structured written counselling in prevention of drop out of glaucoma patients from follow-up schedule.

MATERIAL AND METHODS

It was a prospective descriptive study done in a private eye hospital in Dhaka, Bangladesh. Study period was from January 2015 to June 2016. During this eighteen months 300 patients were enrolled who were newly diagnosed cases of Glaucoma (except acute congestive glaucoma).

The diagnosis was made by measurement of intra ocular pressure (IOP) with applanation tonometer, cup-disc ratio by direct ophthalmoscopy, visual field analysis by Humphrey visual field analyzer, assessment of angle structure by Gonioscopy, measurement of corneal thickness by OCT and sometimes analysis of optic nerve fiber layer thickness by OCT¹⁴. When there was no visual field damage, we performed the measurement of retinal nerve fiber layer thickness. Decreased RNFL reflectivity may be a predictor of future structural and functional glaucomatous damage^{15, 16}.

Most of the patients were diagnosed incidentally. Others had either positive family history of glaucoma or there was frequent change of presbyopic glasses. After diagnosis of glaucoma, some demographic data was recorded and the two groups were further classified according to: age of the patient- above 50 years and below 50 years, gender, economic status- below and above middle class, level of education- below 12 classes or above, family history of glaucoma.

We divided all 300 patients into two groups. Group A (150 patients) included those who got the written counseling brochures after verbal counselling. The brochure was prepared in local Bangla language. Following questions were answered in the brochure:

1. What is glaucoma? Glaucoma is a lifetime disease like diabetes and hypertension. There is mild

increase of your intraocular pressure which causes permanent damage of optic nerve (Optic nerve is a part of brain which carries your visual sensation to the brain. If there is damage to the optic nerve, this sensation will not reach to the brain).

2. Is glaucoma a curable disease¹¹? It is not a curable disease but if you control your IOP with the help of medicines (usually eye drops) there will be no chance of damage of vision for glaucoma.
3. Why people cannot realize that he/she is suffering from glaucoma? Most glaucoma patients do not have symptoms. As visual loss usually starts from the far periphery, glaucoma sufferers may not notice any visual loss in the early to moderate stages of the disease. By the time, an individual realizes something is wrong; there is usually already quite considerable irreversible visual loss. There is nothing that can completely prevent glaucoma but you can slow down its development and progression with early effective treatment.¹²
4. How long should I treat for glaucoma? You should treat it life long as diabetes and hypertension but you have to go to your eye doctor according to his advice and he will check your eye pressure and other investigation if needed.
5. Is there any chance to be blind due to glaucoma? There is chance of irreversible blindness in glaucoma if you do not control your eye pressure¹³.
6. How can I get rid of vision loss due to glaucoma? If you contact your eye doctor regularly and use eye drop in time according to his advice there is no chance of blindness¹⁴.
7. Is there any other treatment of glaucoma? Usually eye drops are sufficient for glaucoma but sometimes to reduce the number of eye drops, eye specialists like to use laser. Surgery is other option but if drops and laser cannot stop progression of the disease your doctor may need to advice you for trabeculectomy surgery.

Group B included patients who were only counseled verbally. These two groups were advised to come after one month to three months for follow up. No reminder was sent to patients for follow up. We used purposive sampling technique. Patients were enlisted in the groups according to the need of the study. After collecting the data, we compared it with the follow up group and with those who did not come for follow up.

Association of each group was analyzed by 2x2 Table (Chi-square test). All statistical analysis was conducted using Social Science Statistics for windows 10.

RESULTS

Table 1 shows the demographic profile of both the groups. There is no significant difference between the two groups regarding age, gender, monthly income, education status and family history of glaucoma. In the two groups, the overall follow up was 165 (55%). In group: A it was 96 (64%) and group: B, it was 69 (46%).

In two groups, the overall follow up was 165 (55%). In group A, it was 96 (64%) and group B, it was 69 (46%). The difference is significant it means those who were verbally counseled as well as got the brochure "Glaucoma the silent killer of your vision" were more motivated regarding their follow-up (table 2).

According to age group, those above 50 years were more aware of follow up if they were provided with written counseling brochure (table 3). The results according to gender and income of the patient are given in table 4 & 5. The level of education was also found to be positively related with follow-up (table 6).

Table 1: Shows demographic profile of glaucoma patients during enlistment.

		Group A	Group B	Total	
Age	Below 50	54	51	105	□ NS
	Above 50	96	99	195	
Gender	Male	71	77	148	□ NS
	Female	79	73	152	
Income	Above average	83	81	168	□ NS
	Below average	67	69	132	
Education	Below 12 class	104	98	202	□ NS
	Above 12 class	46	52	98	
+ Family history	Yes	47	45	92	□ NS
	No	103	105	208	

Chi-squared test was done to find the difference between the two groups
□NS: Non significance

Table 2: Patient follow up between two groups.

	Group A	Group B	p value
Present	96	69	0.001728
Absent	54	81	

Table 3: Follow-up according to age group.

		Group A:		Total	p value
		Came for Follow-up	No Follow-up		
Below 50	24	30	54	0.000182	
Above 50	72	24	96		
Total	96	54	150		
		Group B:		Total	p value
		Came for Follow-up	No Follow-up		
Below 50	20	31	51	0.231469.	
Above 50	49	49	99		
Total	69	81	150		

Table 4: Follow-up according to gender.

Group A:				<i>p value</i>
Came for Follow-up	No Follow-up	Total		
Male	45	26	71	0.76338
Female	51	28	79	
Total	96	54	150	
Group B:				0.88084
			Total	
Male	38	39	77	
Female	31	42	73	
Total	69	81	150	

Table 5: According to income of patient.

Group A:				<i>p value</i>
Came for Follow-up	No Follow-up	Total		
>Aver	54	29	83	0.763338
< Aver	42	25	67	
Total	96	54	150	
Group B:				0.367777
			Total	
>Aver	40	41	81	
<Aver	29	40	69	
Total	69	81	150	

Table 6: According to level of education of patient.

Group A:				<i>p value</i>
Came for follow-up	No follow-up	Total		
< 12 class	60	44	104	0.015521
> 12 class	36	10	46	
Total	96	54	150	
Group B:				0.090334
			Total	
> Aver	40	41	81	
< Aver	29	40	69	
Total	69	81	150	

Table 7: According to family history of glaucoma.

Group A				<i>p value</i>
Came for Follow-up	No Follow-up	Total		
+family	36	11	47	0.029932
-family	60	43	103	
Total	96	54	150	

Group B			Total	
+family	33	12	45	0.00011
-family	36	69	105	
Total	69	81	150	

DISCUSSION

Glaucoma is a disease of the optic nerve and some studies have reported glaucoma as a leading cause of permanent blindness worldwide⁷. Although glaucoma is neither preventable nor curable, the progression of the disease can be halted with appropriate treatment. Glaucoma cannot be cured, but it can be successfully controlled in most cases⁸. As visual loss usually starts from the far periphery, glaucoma sufferers may not notice any visual loss in the early to moderate stages of the disease. By the time an individual realizes something is wrong (needing more light and blurry vision) quite considerable irreversible visual loss has occurred^{15,16}.

The results of our study show that both the groups are demographically homogenous. The overall follow up was found to be 55%, which is more than the Ashaye et al¹⁰ study. In their study, dropout from follow-up was 60.5%, which is higher than our study (in our study overall drop out was 45%) but closer to our group: B population (drop out 54%) where only verbal counseling was given.

Another study by Gupta V¹ et al showed that even after trabeculectomy surgery only 30% of patients maintained a 5-year follow-up¹⁷. In our study drop out from follow-up in group A is significantly less than group: B (*p value is 0.001728*).

Gender related drop out in our study was not consistent with Ashaye AO et al where males had a higher dropout rate than females (78.6% vs. 34.5%). This was found to be due to male patients coming from a distant locality. However, in our study we did not record the locality of the patient.

The drop out of follow-up in relation to economic status was insignificant in our study, which does not correspond to some previous works. Maybe this is because the study was done in a private eye hospital and equal accessibility of poor was not possible¹⁸.

We found that educated patients were more aware of follow-up, which is consistent with Bradford et al studies¹⁹. Level of education is directly proportional with the follow-up rate. In multivariate analysis they

showed level of education is directly proportional to follow-up. In adjusted OR for poor follow-up (95% CI) is 1.34 (0.65-2.76) vs. 4.13 (1.44-11.90) educated vs. non-educated¹⁹.

Glaucoma is 2 to 4 fold more common with positive family history^{20,21}. We found that drop out of follow-up is significantly reduced when there is positive family history of glaucoma irrespective of counseling which is consistent with Green et al²². In their study, follow-up of glaucoma patient was 60% more than those with negative family history of glaucoma, irrespective of counseling. In our study both A (*p-value is 0.029932*) & B group (*p-value is 0.00011*) patients came for follow-up (76.6% and 73.3%) whereas the overall was 165 (55%) in A and B groups. In group A it was 96 (64%) and group B, it was 69 (46%)²³.

CONCLUSION

Glaucoma is a slowly progressing, symptomless, sight threatening disease and one of the leading cause of preventable blindness worldwide because of missed or late diagnosis and large number of 'follow-up dropouts' even after diagnosis. Counseling is an effective method of creating awareness among the diagnosed patients as well as the risk groups. This study clearly shows the effectiveness of a combined verbal with structured written format of counseling over verbal counseling alone in reducing the dropout rate of the diagnosed glaucoma patients irrespective of age, gender, economic status, and level of education.

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REFERENCES

1. **Brad Bowling.** Kanski's clinical ophthalmology a systemic approach. 8th edition. Sydney. Elsevier, 2016: 307 P.
2. **Open angle glaucoma: POAG.** By Admin September 26, 2015. Medic for you || Medical community.
3. **Patient's Guide to Living with Glaucoma.** Stuart Carduner. Discovering the Sneak Thief: Diagnosing Glaucoma.
4. **Rahman MM, Rahman N, Foster PJ, Haque Z, Zaman AU, Dineen B, Johnson GJ.** The prevalence of glaucoma in Bangladesh: a population based survey in Dhaka division. *Br J Ophthalmol.* 2004 Dec; 88 (12): 1493-7.
5. Newspaper: The Daily Star. Glaucoma 3rd biggest cause of blindness. 1:04 AM, March 14, 2015.
6. **Suman S Thapa, Kurt H Kelley, Ger V Rens, Indira Paudyal Lan Chang.** A novel approach to glaucoma screening and education in Nepal. *BMC Ophthalmology,* 20088: 2.
7. Leading Causes of Blindness. NIH Medline plus, summer, 2008; 3(3): 14 - 15.
8. **Robin A, Grover SD.** Compliance and adherence in glaucoma management. *Indian J Ophthalmol.* 2011;59 (Suppl. 1): S93-S96. Doi: 10.4103/0301-4738.73693.
9. **Cindy X Hu^{et al.}** What Do Patients with Glaucoma See? Visual Symptoms Reported by Patients with Glaucoma. *AJMS* 2014; 348 (5):403-409.
10. **Ashaye AO, Adeoye AO.** Characteristics of patients who dropout from a glaucoma clinic. *J, Glaucoma,* 2008; 17 (3): 227-32. Doi: 10.1097/IJG.0b013e31815768b3.
11. **Harry AQ.** Glaucoma: What Every Patient Should Know: USA. Create Space Independent Publishing Platform; 1 Edition (May 7, 2011).
12. **Goldberg I, Susanna R Jr.** How to Save Your Sight. *Glaucoma* 2015; 13: 978-9062992423.
13. **Jackson A.** "Glaucoma Research Foundation. San Francisco. Understanding and Living with Glaucoma.
14. **Boyd K.** What is Glaucoma? American Academy of Ophthalmology. Uploaded on Mar. 01, 2017, cited on 21 Feb. 2018.
15. **Lucy KA, Wollstein G.** Structural and Functional Evaluations for the Early Detection of Glaucoma. *Expert Rev Ophthalmol.* 2016; 11 (5): 367-376.
16. "Glaucoma Research Foundation. San Francisco. 5 common glaucoma tests. Available on <https://www.glaucoma.org/glaucoma/diagnostic-tests.php> uploaded on Last reviewed on October 29, 2017 cited on.
17. **Gupta V, Chandra A, Yogi R, Sihota R, Singh D.** Prevalence and causes of patient dropout after glaucoma surgery. *Ophthalmic Epidemiol.* 2013; 20 (1): 40-4. Doi: 10.3109/09286586.2012.741278.
18. **Krishnaiah S^{et al.}** Awareness of glaucoma in the rural population of Southern India. *Indian J Ophthalmol.* 2005; 53 (3): 205-208.
19. **Bradford W et al.** Predictors of and Barriers Associated with Poor Follow-up in Patients with Glaucoma in South India. *Arch Ophthalmol.* 2008; 126 (10).
20. **Budde MM, Jost B.** Jonas. Family history of glaucoma in the primary and secondary open-angle Glaucoma. *Ophthalmology* 1999; 237 (7): 554-557.

21. **Charles W, Monnies J.** Glaucoma and risk factors. *J Optom.* 2017; 10 (2): 71-78.
22. **Green CM et al.** How significant is a family history of glaucoma? Experience from the Glaucoma Inheritance Study in Tasmania. *Clin Ex Ophthalmol.* 2007; 35 (9): 793-9.
23. **Jeffrey S.** Build your own medical optometry practice part 1. 2nd edition. 2017 Virginia 2. Publisher: The OD/MD consulting group.