

# Evaluation of Quality of Life due to Visual Impairment in Patients with Glaucoma

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## ABSTRACT

**Introduction:** Untreated glaucoma may lead to vision loss and lead to poor quality of life. Aim of the research was to study the quality of life (QoL) in patients with glaucoma and its impact on medical and surgical treatments.

**Material and methods:** The present study was done at department of Ophthalmology, G R Medical College, Gwalior from Aug 2013 to Oct 2014. The study included 60 subjects who were divided into three groups: Group A (20 cases of Primary Open Angle Glaucoma (POAG) on medical treatment), Group B (20 cases of POAG who underwent glaucoma surgery) and Group C (20 age matched healthy volunteers). QoL of patients was assessed using National Eye Institute Visual Functioning Questionnaire (NEI VFQ)-25.

**Results:** Mean age of patients in Group A (n=20), Group B (n=20) and Group C (n=20) was 53.20±1.23 years, 52.12±2.31 years, 51.54±2.23 years respectively. Overall NEI-VFQ score was significantly different in all three groups (p<0001). The subscales most commonly influenced in glaucomatous patients were general health, near activities, mental health, peripheral vision, role limitations, dependency and driving (p<.05).

**Conclusion:** QoL of patients with glaucoma was poor as compared to control group. QoL of medically treated patients is good as compared to surgically treated patients. QoL decreased on increasing the drug regime.

**Keywords:** glaucoma, quality of life, NEI VFQ-25

## INTRODUCTION

Glaucoma is a heterogenous group of disease which leads to optic nerve damage. The prime focus in the management of glaucoma patients should be on preventing the progression of optic nerve damage and resulting visual loss.<sup>1</sup>

Along with above said points, effect of the disease on quality of life (QOL) of glaucoma patients is also generating interest in the field of ophthalmology.<sup>2</sup>

QOL of glaucoma patients can be studied by using vision-directed instruments such as National Eye Institute Visual Function Questionnaire (NEI VFQ), the visual function (VF)-14 and the Activities of Daily Vision Scale (ADVS).<sup>1</sup> Different authors have evaluated the scores using different vision-directed instruments and found that scores were generally low in glaucomatous patients as compared to patients without glaucoma.<sup>1</sup>

The present study was done to evaluate the QoL in patients with glaucoma, to see the effects of type of therapy and to compare it with healthy volunteers.

## MATERIAL AND METHODS

The present study included 60 subjects attending glaucoma clinic of Ophthalmology Department of G R Medical College, Gwalior between Aug 2013 to Oct 2014.

Diagnosed cases of POAG, patients having no other ocular or systemic diseases except glaucoma, individuals between 40 to 60 year of age and cases of trabeculectomy, operated between past 3 to 12 months were included in the present study.

All subjects were divided into three groups: Group A (20 cases of POAG on medical treatment), Group B (20 cases of POAG who underwent glaucoma surgery) and Group C (20 age matched healthy volunteers).

Quality of life of patients was assessed using National Eye Institute Visual Functioning Questionnaire (NEI VFQ)-25; interview was performed by a single ophthalmologist.

NEI VFQ-25 questionnaire addressed aspects of visual disability on 12 subscales, which include general health, general vision, ocular pain, near vision, distance vision, social function, mental health, role limitations, dependency, driving, color vision and peripheral vision.

Each subscale had questions with five possible answers ranging from 1 to 5 or 6. Each subscale was converted to a possible score ranging from 0 to 100, with a higher score indicating a better QoL. A composite score, which was the mean score of all subscales, was also calculated.

The associated relevant examinations including visual acuity, pupillary reaction, flashlight test, Van Herick test, slit lamp bio-microscopy, fundus examination, applanation tonometry and Gonioscopy was also carried out.

## STATISTICAL ANALYSIS

Comparison between the variables was carried out using a Chi-square test (categorical variables) and an analysis of variance (ANOVA) test (numerical variables), Student t-test with a significance of 95%. P<0.05 was considered as significant.

## RESULTS

In present study, mean age of patients of Group A (n=20), Group B (n=20) and Group C (n=20) was 53.20±1.23 years, 52.12±2.31 years, 51.54±2.23 years with female to male ratio of 9:11, 8:12 and 9:11 respectively.

Comparison of NEI-VFQ score among all three groups found a significant difference in overall QoL score among

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Subscales	G	NG	Group		Medication				Drug Regime			Sur- gery
			A	B	Beta blocker	PG Analogue	Alpha agonist	CA inhibitor	Mono	Dual	Triple	
GH	63.1 <sup>#</sup>	73.7 <sup>#</sup>	66.2	60.0	75.0	75.0	75.0	75.0	75.0	66.6	60.0	60.0
GV	67.5	71.2	71.2	63.7	81.2	75.0	75.0	75.0	75.0	66.6	63.7	63.7
OP	65.3	69.3	67.5	63.1	68.7	71.8	75.0	75.0	78.7	62.5	63.1	63.1
NV	58.5 <sup>#</sup>	69.9 <sup>#</sup>	70.0 <sup>#</sup>	51.5 <sup>#</sup>	74.9	74.9	79.1	66.6	82.4	66.6	61.6	61.6
DV	68.5	71.2	66.0	61.0	72.8	68.7	79.1	66.6	79.0	61.0	51.0	51.0
SF	64.0	71.2	68.7	59.3	71.8	78.1	81.2	75	76.1	75.0	59.3	59.3
MH	53.0 <sup>#</sup>	77.0 <sup>#</sup>	62.6 <sup>#</sup>	43.4 <sup>#</sup>	64.4	78.0	70.8	62.6	71.1	59.7	43.4	43.4
RD	63.4 <sup>#</sup>	75.0 <sup>#</sup>	65.8	61.1	75.0	68.5	74.5	75	72.5	53.8	61.1	61.1
Dependency	58.1 <sup>#</sup>	69.5 <sup>#</sup>	65.1 <sup>#</sup>	51.1 <sup>#</sup>	76.2	79.0	63.3	71.6	74.4	62.7	51.1	51.1
Driving	52.0 <sup>#</sup>	76.3 <sup>#</sup>	65.4 <sup>#</sup>	38.6 <sup>#</sup>	74.9	76.9	63.3	66.6	72.8	72.2	38.6	38.6
CV	87.5	90.0	71.2	63.7	75.0	75.0	75.0	75.0	75.0	66.6	63.7	63.7
PV	58.1 <sup>#</sup>	76.2 <sup>#</sup>	66.2 <sup>#</sup>	50.0 <sup>#</sup>	81.2	75.0	87.5	75.0	77.5	75.0	50.0	50.0
OS	61.3 <sup>#</sup>	74.2 <sup>#</sup>	67.2 <sup>#</sup>	55.5 <sup>#</sup>	74.2	74.6	74.9	71.5	73.9	65.6	55.5	55.5

NG; non glaucomatous, G; Glaucomatous, PG; prostaglandin, CA; Carbonic anhydrase GH; general health, GV; general vision, OP; ocular pain, NV; near vision, DV; distance vision, SF; social function, MH; mental health, RD; role limitations, CV; color vision, PV; peripheral vision, OS; overall score <sup>#</sup> P<0.05

**Table-1:** Comparison of NEI-VFQ Score with different parameters

these three groups ( $p < .0001$ ) (table 1).

## DISCUSSION

In addition to disturbed visual function and increased treatment cost, glaucoma also affects quality of life of patients. Influence starts from the date of diagnosis of glaucoma, at the beginning there is fear of blindness by the patient and later progression of disease, both lead to continuous decrease in focus for day to day activities and also shakes the patient's self confidence.<sup>3</sup>

For the assessment of QoL of glaucoma patients, NEI VFQ-25 is the most widely used ophthalmic QoL questionnaire and has been validated by various studies throughout the world.<sup>4</sup> As per the Gignac et al, NEI VFQ-25 is the only tool which is able to provide data which is both specific and sensitive to eye related problems, it also generates knowledge regarding status of the patients.<sup>5</sup>

Sherwood et al did a study to analyze the QoL of glaucoma patients using Medical Outcomes Study (MOS)-20 as a quality tool, reported that patients with glaucoma scored less as compared to normal patients.<sup>2</sup> Similar were found in the present study.

Jampel et al and Sawada et al, both did similar studies using NEI VFQ-25, reported patients with glaucoma had clearly compromised QoL.<sup>1,6</sup> In present study, we identified a composite score which was higher in non glaucomatous subjects as compared to glaucomatous subjects ( $p < .0001$ ) which is in accordance with other studies. However, a lower QoL score was observed in present study as compared to American and Japanese workers.<sup>1,6</sup>

The possible reason may be due to illiteracy, poor personal hygiene, poverty, poor standard of living and medical facilities. Also, patients with glaucoma have associated social stigma, which may lead to depression; forbidding them to have good access to medical facilities.

In present study, the subscales most commonly influenced in glaucomatous patients were general health, near activities, mental health, peripheral vision, role limitations, dependency and driving ( $p < .05$ ).

Study done by Evans et al suggested that areas which are mostly affected in glaucomatous patients are chiefly general health, general vision, mental health, expectations, driving and near activities both for NEI VFQ and NEI-VFQ 25 questionnaires.<sup>7</sup> Efforts were also made to compare QoL of glaucoma patients and different ocular morbidities, comparison revealed that QoL of glaucoma patients was more affected specially mental aspects.<sup>7</sup>

Glaucomatous patients reported more difficulty in driving as compared to controls and perceived difficulty keep on increasing and damaging visual function in better eye.<sup>8</sup>

This may be due to the fact that glaucoma patients find difficulty in discovering peripheral objects. One study found that patients with glaucoma were less likely to see pedestrians on road side during real road tests and required intervention by the evaluator.<sup>9</sup>

Near vision jobs like reading are also one of the most precious visual functions in all patients; studies have reported 40% of the patients had difficulty in reading.<sup>10</sup>

Among glaucomatous group, patients under medical treatment had better QoL performance than those subjected to surgery. The subscales most commonly affected are near activities, mental health, peripheral vision, dependency and driving ( $p < .05$ ).

Regarding surgical intervention, in early stages of disease, mental health and peripheral vision, as measured by the NEI VFQ-25 were the most commonly affected subscales.<sup>11</sup>

Present study had limitations like patients have not been classified according to severity of disease, which can influence QoL and also the sample size was small.

## CONCLUSION

Glaucomatous patients have poor QoL than non-glaucomatous and glaucomatous patients on medical treatment have better QoL score than the surgically treated patients. There was no difference in QoL of glaucoma patients on monotherapy with different antiglaucoma medications, while there was worsening of QoL as the number of antiglaucoma med-

ications increased.

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