VISION RELATED QUALITY OF LIFE FOLLOWING PANRETINAL PHOTOCOAGULATION IN PROLIFERATIVE DIABETIC RETINOPATHY

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ABSTRACT

BACKGROUND

Diabetic retinopathy is a major cause of blindness in developing countries also and can be treated by effective treatment like panretinal photocoagulation**.** The side effects can be ignored compared to the advantages of laser treatment.

The objective of the study is to evaluate the changes in vision-related quality of life following panretinal photocoagulation in proliferative diabetic retinopathy.

MATERIALS AND METHODS

Prospective study of changes in vision related quality of life following pan retinal photocoagulation in patients with proliferative diabetic retinopathy conducted in Retina Clinic, RIO, Trivandrum during the time period of one year from April 2008**.**

Inclusion Criteria- Eyes with proliferative diabetic retinopathy, visual acuity better than or equal to 6/60, a follow up of at least 6 months after pan retinal photocoagulation.

Exclusion Criteria- Eyes with cataractous changes in the lens, eyes which would be undergoing or have undergone focal photocoagulation, eyes which have undergone barrage or sectoral retinal photocoagulation, patients with colour blindness, eyes with vitreous haemorrhage and macular preretinal haemorrhage, glaucomatous patients with peripheral field loss.

RESULTS

The mean age of the patients was 52yrs., Male patients (30) outnumbered the female patients (23), Mean duration of diabetes was 14.42 years, only 16.8% of patients had deterioration in the visual functions questionnaire score, 46.3% stabilised and & 36.8% showed improvement in their vision related quality of life. Among patients with deterioration in visual functions questionnaire score, none had difficulty in their daily routine works. The use of vision targeted health status questionnaires in conjunction with the clinical examination provide an overview of individuals' daily well-being following laser treatment.

CONCLUSION

Our study showed that there is significant improvement in vision related quality of life following panretinal photocoagulation. So, we recommend pan retinal photocoagulation for all patients with proliferative diabetic retinopathy.

KEYWORDS

Panretinal Photocoagulation, Proliferative Diabetic Retinopathy, Vision-Related Quality of Life Questionnaire.

HOW TO CITE THIS ARTICLE: Sindhu NM, Padmavathi P. Vision related quality of life following panretinal photocoagulation in proliferative diabetic retinopathy. J. Evid. Based Med. Healthc. 2018; 5(44), 3098-3106. DOI: 10.18410/jebmh/2018/633

BACKGROUND

Diabetic Retinopathy is a leading cause of blindness for people between the ages of 20-64 years. Greater than 90% of diabetics develop retinopathy at some time during their lives.

In India 12 million people have less than 6/60 in the better eye. Of this diabetic retinopathy stands sixth among most frequent causes of blindness. The socioeconomic burden resulting from visual impairment due to diabetic retinopathy is a serious concern.

Preventive strategies have to be evolved to ensure that blindness due to diabetic retinopathy does not become a public health problem in India. Early detection of sight threatening diabetic retinopathy and treatment with laser is the only way to prevent visual deterioration and major visual loss. Good glycemic control, timely treatment and vitrectomy in advanced stages can together bring visual loss due to diabetic retinopathy under control. A detailed look into the various factors that accelerate this visual loss is absolutely an emergency in the present scenario.

According to various studies such as DRS (diabetic retinopathy Study)[1] ETDRS (early treatment diabetic retinopathy study)[2] and UKPDS (United Kingdom prospective diabetic study)[3] laser photocoagulation is the accepted treatment for the control of diabetic retinopathy.

Visual deterioration in Diabetes can be correlated with age and duration of diabetes. Visual loss results from non-

Financial or Other, Competing Interest: None.
Submission 03-10-2018, Peer Review 06-10-2018,
Acceptance 23-10-2018, Published 27-10-2018.
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DOI: 10.18410/jebmh/2018/633

resolving vitreous haemorrhage, tractional retinal detachment or diabetic macular oedema. Proliferative retinopathy has worst prognosis compared to nonproliferative retinopathy. The prognosis is worse when proliferative changes are near the disc. One year after the first significant vitreous haemorrhage, about one third patients maintain good vision (6/12 or better), one third develop moderately impaired vision, and rest one third become legally blind. One third develop moderately impaired vision, and rest one third become legally blind. If one eye becomes blind, the chance of the other eye becoming blind in the next one year is extremely high (60%) In brief, the interval from the onset of disease to the onset of severe blindness is an average of 17.4 years.

The 5-year risk of severe visual loss (SVL) can be reduced to less than 5 percent, if a person with diabetic retinopathy undergoes pan retinal photocoagulation. Since diabetic retinopathy is often asymptomatic in its most treatable stages, its early detection through regularly scheduled examinations becomes critical.

Aims and Objectives

To study changes in vision related quality of life following panretinal photocoagulation in proliferative diabetic retinopathy.

MATERIALS AND METHODS

Prospective study of changes in vision related quality of life following pan retinal photocoagulation in patients with proliferative diabetic retinopathy conducted in Retina clinic, RIO, Trivandrum during the time period one year from April 2008. Subjects who satisfied the inclusion criteria were selected for the study. A written consent from the patients included in the study was taken. A thorough history regarding duration, nature of treatment, type of diabetes and associated systemic diseases like hypertension, cardiovascular, renal disease was taken. All patients enrolled in the study underwent a standard ocular examination.

After objective and subjective refraction, best corrected visual acuity (BCVA) was determined using standard Snellen's charts. Colour vision was determined using Ishihara's pseudo isochromatic chart. Contrast sensitivity was measured using Pelli-Robson chart at one-meter distance. Visual field was examined with automated Humphrey Field analyser, using full field -81 program.

A complete slit-lamp examination of the anterior segment was done. Intraocular pressure was measured in every case by Goldman Applanation tonometry.

A detailed fundus evaluation was performed with an indirect Ophthalmoscope using + 20 D lens and slit lamp biomicroscopy using +90D lens. Each fundus was subsequently graded as per classification and the extend and location of hard exudates was accurately recorded.

Vision related quality of life was assessed by visual function questionnaire, customized and culturally modified version of National Eye Institute Visual Function Questionnaire (NEI-VFQ 25). It was a standard tool contextualised, pier reviewed. The content and context were validated. This Questionnaire contain 20 different questions to asses vision related ability to perform near activities, distance activities, driving, night vision, peripheral vision, driving, cooking, ocular pain, social functioning, mental health, role difficulties, dependency, and overall quality of life. The questionnaire was administered to the patient by the Interviewer and scores were allotted according to the patients' responses. The score was based on all activities and the amount of reported difficulty experienced in performing those activities. Score 1 was given to those activities which can be performed without any difficulty, score of 2 for those can performed with very little difficulty, score of 3 for those can performed with little difficulty, score of 4 for those can be performed but with great deal of difficulty, and score 5 was given to those activities which was unable to perform due to defective vision. The sum of all Scores on all activities were taken, resulting in a final score ranging between 80 (worst level of visual function) and 20 (best level of visual function).

After explaining the Procedure and informed consent from the patient, photocoagulation using Diode laser with a wavelength of 810 nm with a slit lamp delivery system was done in 4 sittings at one-week interval.

Follow up was done at 1, 3 and 6 months after last sitting of pan retinal photocoagulation, during each follow up routine ocular examination was done, then best corrected Visual acuity, Contrast sensitivity, Colour vision and fundus examination was done. At 6 months Visual field was analysed byFF81 and visual function was assessed and scored by filling Visual function Questionnaire.

Inclusion Criteria

1) Eyes with proliferative diabetic retinopathy.
2) Visual acuity better than or equal to 6/60.
3) A follow up of at least 6 months after pan retinal photocoagulation.

Exclusion Criteria

1) Eyes with cataractous changes in the lens.
2) Eyes which would be undergoing or have undergone Focal photocoagulation.
3) Eyes which undergone Barrage or sectoral retinal photocoagulation.
4) Patients with colour blindness.
5) Eyes with vitreous haemorrhage and macular preretinal haemorrhage.
6) Glaucomatous patients with peripheral field loss.

Proforma-

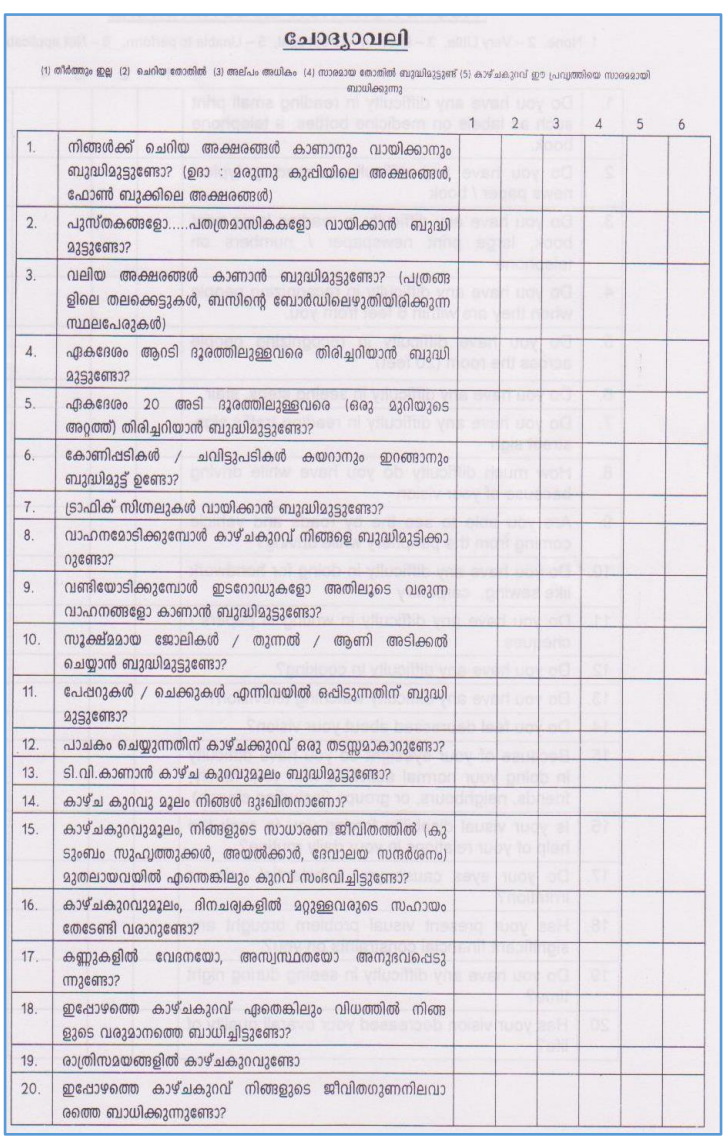
Changes in vision related quality of life following PRP in Proliferative Diabetic Retinopathy.

Patient name :			
Address :		Age:	Sex :
Occupation :		Occupation :	
GENERAL HEALTH			
Pretreatment : Best corrected visual acuity Anterior Segment Fundus IOP Colour vision Contrast sensitivity Visual Field FF-81	RE	LE	
Treatment : PRP Spot size			
No of sittings : 1st follow up (1 month) Best corrected visual acuity Anterior segment Fundus IOP Colour vision Contrast sensitivity Visual Field FF-81	RE	LE	
2nd follow up (3 months) Best corrected visual acuity Anterior segment Fundus IOP Colour vision Contrast sensitivity Visual Field FF-81	RE	LE	
3rd follow up (6 months) Best corrected visual acuity Anterior segment Fundus IOP Colour vision Contrast sensitivity Visual Field FF-81	RE	LE	

Visual Function Questionnaire

(1 - None, 2 - Very Little, 3 - Little, 4 - Great deal, 5 - Unable to perform, 0 - Not applicable.)

		0	1	2	3	4	5
1.	Do you have any difficulty in reading small print such as labels on medicine bottles, a telephone book?						
2.	Do you have any difficulty in reading typical newspaper / book?						
3.	Do you have any difficulty in reading large print book, large print newspaper / numbers on telephone?						
4.	Do you have any difficulty in recognizing people when they are within 6 feet from you?						
5.	Do you have difficulty in recognizing people across the room (20 feet)?						
6.	Do you have any difficulty in seeing steps, stair?						
7.	Do you have any difficulty in reading traffic sign, street sign?						
8.	How much difficulty do you have while driving because of your vision?						
9.	Are you able to see the by roads and vehicle coming from the periphery while driving?						
10.	Do you have any difficulty in doing for handwork like sewing, carpentry?						
11.	Do you have any difficulty in writing in papers / cheques?						
12.	Do you have any difficulty in cooking?						
13.	Do you have any difficulty watching television?						
14.	Do you feel depressed about your vision?						
15.	Because of your eyesight do you have difficulty in doing your normal activities with your family, friends, neighbours, or groups (including church)?						
16.	Is your visual disability forcing you to seek the help of your relations in your daily routine?						
17.	Do your eyes cause you substantial pain or irritation?						
18.	Has your present visual problem brought any significant financial constraints on you?						
19.	Do you have any difficulty in seeing during night time?						
20.	Has your vision decreased your overall quality of life?						



ചോദ്യാവലി

(1) തീർത്തും ഇല്ല (2) ചെറിയ തോതിൽ (3) അല്പം അധികം (4) സാമാന്യ തോതിൽ ബുദ്ധിമുട്ടുണ്ട് (5) കാഴ്ചക്കുറവ് ഈ പ്രവൃത്തിയെ സാമാന്യമായി ബാധിക്കുന്നു

		1	2	3	4	5	6
1.	നിങ്ങൾക്ക് ചെറിയ അക്ഷരങ്ങൾ കാണാനും വായിക്കാനും ബുദ്ധിമുട്ടുണ്ടോ? (ഉദാ : മരുന്നു കുപ്പിയിലെ അക്ഷരങ്ങൾ, ഫോൺ ബുക്കിലെ അക്ഷരങ്ങൾ)						
2.	പുസ്തകങ്ങളോ.....പത്രമാസികകളോ വായിക്കാൻ ബുദ്ധിമുട്ടുണ്ടോ?						
3.	വലിയ അക്ഷരങ്ങൾ കാണാൻ ബുദ്ധിമുട്ടുണ്ടോ? (പത്രങ്ങളിലെ തലക്കെട്ടുകൾ, ബസിന്റെ ബോർഡിലെഴുതിയിരിക്കുന്ന സ്ഥലപേരുകൾ)						
4.	ഏകദേശം ആറടി ദൂരത്തിലുള്ളവരെ തിരിച്ചറിയാൻ ബുദ്ധിമുട്ടുണ്ടോ?						
5.	ഏകദേശം 20 അടി ദൂരത്തിലുള്ളവരെ (ഒരു മുറിയുടെ അറ്റത്ത്) തിരിച്ചറിയാൻ ബുദ്ധിമുട്ടുണ്ടോ?						
6.	കോണിപ്പടികൾ / ചവിട്ടുപടികൾ കയറാനും ഇറങ്ങാനും ബുദ്ധിമുട്ട് ഉണ്ടോ?						
7.	ട്രാഫിക് സിഗ്നലുകൾ വായിക്കാൻ ബുദ്ധിമുട്ടുണ്ടോ?						
8.	വാഹനമോടിക്കുമ്പോൾ കാഴ്ചക്കുറവ് നിങ്ങളെ ബുദ്ധിമുട്ടിക്കാറുണ്ടോ?						
9.	വണ്ടിയോടിക്കുമ്പോൾ ഇടറോഡുകളോ അതിലൂടെ വരുന്ന വാഹനങ്ങളോ കാണാൻ ബുദ്ധിമുട്ടുണ്ടോ?						
10.	സൂക്ഷ്മമായ ജോലികൾ / തുന്നൽ / ആണി അടിക്കൽ ചെയ്യാൻ ബുദ്ധിമുട്ടുണ്ടോ?						
11.	പേഴ്സുകൾ / ചെക്കുകൾ എന്നിവയിൽ ഒപ്പിടുന്നതിന് ബുദ്ധിമുട്ടുണ്ടോ?						
12.	പാചകം ചെയ്യുന്നതിന് കാഴ്ചക്കുറവ് ഒരു തടസ്സമാകാറുണ്ടോ?						
13.	ടി.വി.കാണാൻ കാഴ്ച കുറവുമൂലം ബുദ്ധിമുട്ടുണ്ടോ?						
14.	കാഴ്ച കുറവു മൂലം നിങ്ങൾ ദുഃഖിതനാണോ?						
15.	കാഴ്ചകുറവുമൂലം, നിങ്ങളുടെ സാധാരണ ജീവിതത്തിൽ (കുടുംബം സുഹൃത്തുക്കൾ, അയൽക്കാർ, ദേവാലയ സന്ദർശനം) മുതലായവയിൽ എന്തെങ്കിലും കുറവ് സംഭവിച്ചിട്ടുണ്ടോ?						
16.	കാഴ്ചകുറവുമൂലം, ദിനചര്യകളിൽ മറ്റുള്ളവരുടെ സഹായം തേടേണ്ടി വരാറുണ്ടോ?						
17.	കണ്ണുകളിൽ വേദനയോ, അസ്വസ്ഥതയോ അനുഭവപ്പെടുന്നുണ്ടോ?						
18.	ഇപ്പോഴത്തെ കാഴ്ചകുറവ് ഏതെങ്കിലും വിധത്തിൽ നിങ്ങളുടെ വരുമാനത്തെ ബാധിച്ചിട്ടുണ്ടോ?						
19.	രാത്രിസമയങ്ങളിൽ കാഴ്ചകുറവുണ്ടോ						
20.	ഇപ്പോഴത്തെ കാഴ്ചകുറവ് നിങ്ങളുടെ ജീവിതഗുണനിലവാരത്തെ ബാധിക്കുന്നുണ്ടോ?						

Statistical Analysis

All the data were computed, and statistical analyses were done using the SPSS PC Windows version 17.0

Statistical Methods

a. Univariate analysis: quantitative variables were summarised as means.
b. Wilcoxon Signed Ranks Test for paired (before-after) data as the variable is qualitative.

RESULTS

A total of 60 patients with proliferative Diabetic retinopathy were included in the study at its beginning. Of these, one patient died, 6 patients lost follow up. Finally, a total of 95 eyes of 53 patients fulfilled the inclusion criteria of the study. Follow up data were available for 95 eyes of 53 patients who were studied prospectively. The demographic factors and diabetic characteristics were studied in each patient. The changes in Vision related quality of life following panretinal photocoagulation was studied at 6 months.

1) Demographic Characteristics

Age Distribution

Mean age of the study sample is 51.96 years (SD = 6.32, 95% CI – 50.224 to 53). On extrapolating into general population, the mean age of population is 50years.

	No. of Patients	Percent	95% CI
Male	30	56.6	56.46 to 56.70
Female	23	43.4	43.26 to 43.54
Total	**53**	**100.0**	

Table 1. Gender Distribution

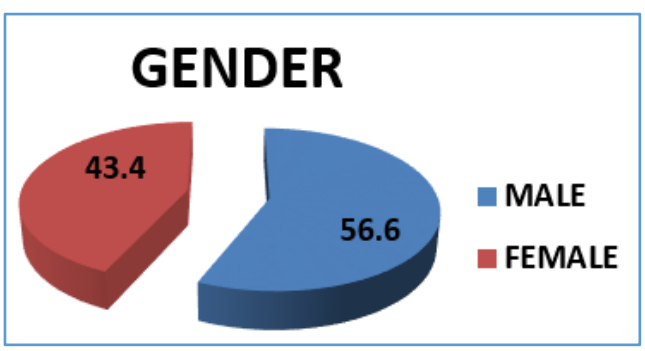


Chart 1. Among 53 Patients Studied, 56.6% are Males and 43.4% are Females

Duration of Diabetes

The mean Duration of Diabetes in our study group was 14.42 (SD = 3.65; 95% CI = 13.42 - 14.42). The mean Duration of Diabetes of population with Proliferative Diabetic Retinopathy is 13.42years to 14.42 years at 95% Confidence Interval.

	Frequency	Percent	95% CI
Right Eye	50	52.6	52.5-52.7
Left Eye	45	47.4	47.3-47.5
Total	**95**	**100.0**	

Table 2. Eye Involved

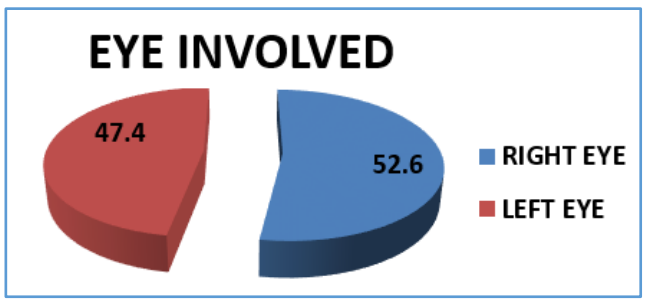


Chart 2. Eye Involved

Among our study population 52.6% patients presented with Right Eye involvement, whereas 47.4% had left eye involvement.

1. Visual Acuity

Comparison of best corrected visual acuity of pre prp with follow ups-

	No. of Patients	Mean	Std. Error	Std. Deviation
PRE PRP	95	0.80	.028	.275
1 Month	95	0.76	.030	.288
3 Months	95	0.77	.028	.277
6 Months	95	0.79	.034	.327

Table 3

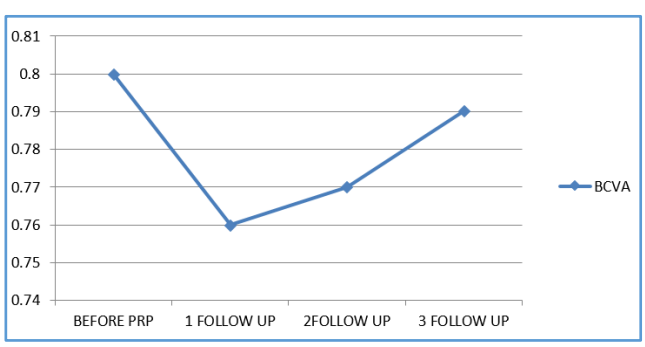


Chart 3. BCVA

The mean Best corrected visual acuity before PRP was compared with mean BCVA post PRP at 1 month, 3 months, and 6 months later. There was a drop in the mean BCVA at first follow up at 1 month than pre PRP BCVA, which was statistically significant (p=0.01). There was no statistically significant difference in BCVA at 2nd and 3rd follow up visits.

Paired t test

1. Prelaser BCVA & BCVA at first follow up P =.01
2. BCVA at first follow up & BCVA at second follow up P =.15
3. BCVA at second follow up & BCVA at third follow up p=.13

4. Visual field: Among 95 eyes studied significant peripheral constriction of visual fields was seen only in 9.5% of cases.

	Frequency	Percent	95% CI
Yes	9	9.5	9.44-9.56
No	86	90.5	90.44-90.56
Total	95	100.0	

Table 4. Visual Field

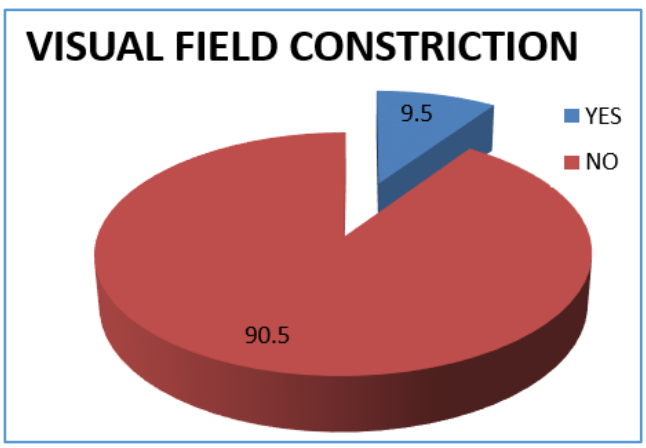


Chart 4. Visual Field Constriction

5. Vision Related Quality of Life
Wilcoxon Signed Ranks Test was used to analyse the visual function questionnaire score before and after the photocoagulation as the variable is qualitative. After analysing the scores, among 95 eyes studied, 35(36.8%) eyes showed improvement in visual function, 44(46.3%) showed stabilisation and 16 eyes (16.88%) showed deterioration.

	Frequency	Percent	95% CI
Improved	35	36.8	36.66-36.94
Stabilized	44	46.3	46.16-46.44
Deteriorated	16	16.8	16.66-16.94
Total	**95**	**100.0**	

Table 5

		Mean Pre PRP	Mean Post PRP	p value
1.	Do you have any difficulty in reading small print such as labels on medicine bottles, a telephone book?	1.75	1.37	P=0.052
2.	Do you have any difficulty in reading typical newspaper / book	1.48	1.38	P=0.008
3.	Do you have any difficulty in reading large print book, large print newspaper / numbers on telephone	1.39	1.29	P=0.527
4.	Do you have any difficulty in recognizing people when they are within 6 feet from you?	1	1.1	P=0.002
5.	Do you have difficulty in recognizing people across the room (20 feet)	1.5	1.51	P=0.62
6.	Do you have any difficulty in seeing steps, stair?	1.34	1.41	p=0.052
7.	Do you have any difficulty in reading traffic sign, street sign	0.79	0.739	P=0.739
8.	How much difficulty do you have while driving because of your vision	0.79	0.739	P=0.739
9.	Are you able to see the by roads and vehicle coming from the periphery while driving?	0.65	0.76	P=0.004
10.	Do you have any difficulty in doing for handwork like sewing, carpentry	2.15	2	P=0.011
11.	Do you have any difficulty in writing in papers / cheques	1.4	1.31	P=0.005
12.	Do you have any difficulty in cooking?	0.82	0.72	P=0.002
13.	Do you have any difficulty watching television?	1.11	1.11	P=1
14.	Do you feel depressed about your vision?	1.36	1.26	P=0.014
15.	Because of your eyesight do you have difficulty in doing your normal activities with your family, friends, neighbours, or groups (including worship places)	1.3	1.22	P=0.005
16.	Is your visual disability forcing you to seek the help of your relations in your daily routine?	1	1	P=1
17.	Do your eyes cause you substantial pain or irritation?	1	1	P=1

18.	Has your present visual problem brought any significant financial constraints on you?	2.24	1.91	P<0.001
19.	Do you have any difficulty in seeing during night time?	2.2	1.99	P<0.001
20.	Has your vision decreased your overall quality of life?	1.69	1.44	P<0.001

Table 6. Wilcoxon Signed Ranks Test for Visual Function Questionnaire before and 6 months after PRP

The composite score of Visual Function Questionnaire was significantly reduced in the PDR patients after Pan retinal photocoagulation (26.60). Composite score of Visual Function Questionnaire before Panretinal Photocoagulation is25.38. So, PRP significantly improved Visual Function Questionnaire composite score (P<.005) in 11out of 20 subscales (p<0.05) and 3 other subscales may be statistically significant if the sample size is much larger (p= 0.05).

The mean score before PRP is 26.60 and mean score after PRP is 25.38. The median score before PRP is 23.0 and median score after PRP is 24.0. The score at 3rd percentile before PRP is 19 and score at 3rd percentile after PRP is 18.88. The score at 25th percentile before PRP is 21 and score at 25th percentile after PRP is 21. The score at 75th percentile before PRP is 28.0 and score at 75th percentile after PRP is 29.0. The score at 97th percentile before PRP is 48.0 and score at 95th percentile after PRP is 38.72.

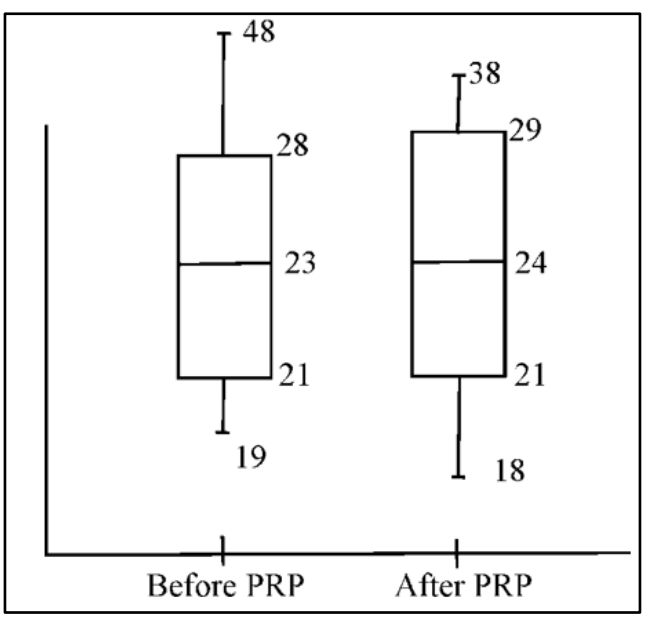


Chart 5

DISCUSSION

Diabetic retinopathy is now considered as the commonest cause of new blindness among the working age adults. The early Treatment Diabetic Retinopathy study (ETDRS) and Diabetic Retinopathy Study (DRS) provided essential data for establishing guidelines for the timeless and effective treatment of Diabetic Retinopathy

Current studies describe the beneficial and adverse effects of Panretinal photocoagulation over Visual functions. We studied the effect of Panretinal photocoagulation Vision related quality of life following PRP in proliferative diabetic retinopathy cases.

Our results showed, there is a statistically significant reduction in Visual acuity in the 1st follow up which was stabilised in the next follow ups.

There is a statistically significant reduction in contrast sensitivity in 1st and 2nd follow ups after PRP but it was stabilised, and no change was noticed in the subsequent follow ups.

Only 9.5% of patients had a significant peripheral constriction of visual fields.

No statistically significant change in colour vision following Pan retinal photocoagulation.

Only 16.8% of cases showed a deterioration in the Vision related quality of life following PRP and none of them had significant difficulty in doing their day to day activities.

Age

Masahiko Shimura et al[4] and associates in their prospective study of patients with severe non-proliferative diabetic retinopathy showed that the mean age of the patients was 58.8 years.

Mohan Rema[5] et al in their retrospective study showed that the mean age of the patients who underwent pan retinal photocoagulation was 53 years.

Our study also showed that the mean age of the patients was 52 years, which was comparable with previous studies.

Gender

In the study by Masahiko Shimura et al 56.2% of patients were males and 43.8% were females. In our study 56.6% were males and 43.4% were females, which was comparable with previous studies.

Diabetic Status

Mean duration of diabetes in our study was 14.2 years. This was comparable to study by Mohan Rema et al, who found the mean duration of diabetic to be 14 years.

Visual Acuity

Masahiko Shimura et al and associates in a prospective study of sixty-four patients have shown that for eyes with severe diabetic retinopathy and good Visual acuity, panretinal photocoagulations did not affect post laser visual acuity in more than 80% of patients Though there is a statistically significant reduction in Visual acuity in the 1st follow up, it was improved and stabilised in the next follow ups. Diabetic retinopathy study showed that there is decrease in visual acuity of one line in 11% of eyes following pan retinal photocoagulations using argon laser.

Contrast Sensitivity

Khosla PK et al[6] and associates have shown that contrast sensitivity was significantly affected immediately after PRP but stabilised to pre-laser level by the end of 3 months.

Visual Field

Zaluski et al[7] and associates in their prospective study of 12 patients with preproliferative or proliferative diabetic retinopathy have shown that, though there is loss of retinal sensitivity after pan retinal photocoagulation no patients complained of it. Henrickson M and Heigil et al[8] have shown that retinal sensitivity has shown depressed even before treatment but was significantly lower 2 weeks after treatment. Visual fields remained stable 4 months later. Diabetic Retinopathy study shown that there is constriction of peripheral visual field due to treatment in some eyes which was more severe with xenon photocoagulation. Unlike other studies, our study showed only 9.5% of cases with constriction of visual fields.

Quality of Life

Tranos et al[9] and associates in their prospective study shown that there is an improvement in vision related quality of life following laser photocoagulation. The scores associated with general vision, near vision, distance vision, peripheral vision, vision specific social functioning, vision specific mental health, expectations for visual function, and dependency due to vision was significantly improved following laser treatment.

In our study there is a statistically significant improvement in near vision, peripheral vision, night vision, vision specific social functioning, vision specific mental health. Among 95 eyes studied, 35(36.8%) eyes showed improvement in visual function, 44(46.3%) showed stabilisation and 16 eyes (16.88%) showed deterioration in the Visual Function Questionnaire score before and after the photocoagulation. Among the patients with deterioration in visual function questionnaire score none had any difficulties in pursuing their activities of daily living. This study found that Pan retinal photocoagulation for PDR has a beneficial effect on patients' subjective perception of visual function. The use of vision targeted health status questionnaires in conjunction with the clinical examination appears to provide a more comprehensive overview of individuals' daily well-being following laser treatment.

Limitations of the Study

Our study has few limitations, which includes:

1. Small Sample size
2. Short period of follow up
3. Unavailability of sensitive colour vision test

Summary

95 eyes of 53 patients were selected after meeting the inclusion and exclusion criteria, who had proliferative Diabetic Retinopathy and they were evaluated at baseline for best corrected visual acuity, colour vision, contrast sensitivity and visual field, visual function questionnaire was administrated pre and post laser treatment. Pan retinal photocoagulation using Diode laser with a wave length of 810 nm and slit lamp delivery system was done in 4 sittings. Patients were followed up at 1 month, 3 month and 6 months following pan retinal photocoagulation comparison were made with old results.

The aim of our study was to evaluate the changes in vision related quality of life following panretinal photocoagulation.

The following were the various outcomes of the study.

1. The mean age of the patients was 52yrs.
2. Male patients (30) outnumbered the female patients (23)
3. Mean duration of diabetes was 14.42 years.
4. Only 16.8% of patients had deterioration in the visual functions questionnaire score, 46.3% stabilised and & 36.8% showed improvement in their vision related quality of life.
5. Among patients with deterioration in visual functions questionnaire score, none had difficulty in their daily routine works.
6. The use of vision targeted health status questionnaires in conjunction with the clinical examination provide an overview of individuals' daily well-being following laser treatment.

CONCLUSION

Our study showed that there is significant improvement in vision related quality of life following panretinal photocoagulation. In spite of considerable impairment in contrast sensitivity, no subjective problem seemed to have an influence on day to day activities. As there is a 2-year risk of severe visual loss without treatment, side effects of pan retinal photocoagulation outweigh the risk of harmful treatment effects.

Hence, we recommend pan retinal photocoagulation for all patients with proliferative diabetic retinopathy

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