



CODEN [USA]: IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.3580137>Available online at: <http://www.iajps.com>

Research Article

**DETERMINATION OF VARIOUS FACTORS AND VISUAL
OUTCOME IN THE PATIENTS SUFFERING FROM ACUTE
CENTRAL SEROUS CHORIO-RETINOPATHY**¹Dr Amna Zahir, ²Dr Eman Yasir, ³Dr. Summaya Fakhar¹BVH, ²Sir Gangaram Hospital Lahore, ³THQ Khushab.

Article Received: October 2019 Accepted: November 2019 Published: December 2019

Abstract:

Objective: This research work aimed to find out the visual outcome among patients present with acute CSCR (Acute Central Serous Chorio-retinopathy) and to examine the relationship of medical, tomographic & angiographic factors with final outcome of visual acuity in population of our region.

Methodology: This research work carried out in General Hospital, Lahore from December 2014 to September 2019. We included total 55 eyes of fifty three patients suffering from acute-CSCR. Ophthalmic examination carried out for all the patients including at baseline SD OCT imaging, 1 month, 3 months and we also performed FFA at baseline. The calculations of initial and final values of BCVA & CFT were the primary outcome measures. We used the SPSS V.20 for the statistical analysis of the collected information.

Results: The average age of the population of this study was 36.660 ± 6.240 years. On OCT average CFT at the baseline was $467.490 \pm 144.800 \mu\text{m}$ in eye with infection, whereas average CFT calculations at the last follow-up was $244.670 \pm 32.990 \mu\text{m}$ ($p < 0.010$). Presenting average log-MAR BCVA was 0.470 ± 0.250 & last average log-MAR BCVA was 0.180 ± 0.140 ($p < 0.010$). There was a statistically significant association of the baseline BCVA with the last BCVA ($p=0.030$).

Conclusion: Presenting the visual acuity of 6.0/12.0 or better has association with the auspicious visual outcome among patients suffering from acute-CSCR.

Keywords: CSCR, acute, methodology, outcome, FFA, Log-MAR, CFT, measures, ophthalmic, SPSS, baseline.

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Please cite this article in press Amna Zahir et al., *Determination of Various Factors and Visual Outcome in the Patients Suffering from Acute Central Serous Chorio-Retinopathy.*, Indo Am. J. P. Sci, 2019; 06(12).

INTRODUCTION:

Von Graefe for the very first time in 1866 described the CSCR as an idiopathic abnormality of the outer blood barrier of retina, categorized by a localized serous impartment of RPE (Retinal Pigment Epithelium) in macular region [1, 2]. This is normally a unilateral complication influencing the males in their 3rd and 4th decades of their lives [2]. The correct reasons behind the development of this disease are completely understandable but stasis, inflammation and ischemia care the main reasons which can lead to the secondary alterations in RPE and neurosensory detachment of retina [3, 4]. Acknowledges factors of risks linked with the acute CSCR include Type-A personality, HTN (Hypertension), stress, habit of smoking, use of the exogenous steroid, pregnancy, APD (Acid Peptic Disease), infection due to H. pylori, use of alcohol and CVD (Collagen Vascular Disease) [2, 5, 6]. There are two main forms of CSCR; one is acute and other is chronic. OCT (Optical Coherence Tomography) & FFA (Fundus Fluorescein Angiography) are the most important investigations that are very useful for the confirmation of the medically diagnosis.

Nair in his research work stated that in acute-CSCR, adverse VA (Visual Acuity) displayed statistically significant relationship with high SRF dimension and diminishing of outer nuclear layer a the fovea [7]. Aggio discovered that initial VA can be a suitable predictor of visual outcome in acute-CSCR [8]. The main purpose of this research work was to assess the visual outcome among patients suffering from acute-CSCR & to find out the relationship between different factors and visual outcome in the populations of our regions.

METHODOLOGY:

This research work carried out at General Hospital, Lahore from December 2014 to September 2019 in Ophthalmology Department. The ethical committee of the institute gave the permission to conduct this research work. We selected the patients suffering from acute-CSCR who visited the OPD in the duration of this research work. We took the written consent of all the patients after explaining them the purpose of this research work. We defined the acute-CSCR according

to the international standards and a skillful ophthalmologist confirmed the diagnosis of the complication. Patients suffering from recurring CSCR, intra-ocular inflammation or other serious complication of eye were not the part of this research work. We carried out the complete ophthalmic examination of all the patients including calculations of Snellen BVCA (Best Corrected Visual Acuity), slit lamp biomicroscopy with 90.0 D lens & OCT imaging of spectral domain with the utilization of the Topcon 3.0 D-1000 Mark-2 OCT machine at baseline, 30 days and 90 days. We labelled the SRF height as CFT (Central Foveal Thickness) calculated as the highest distance from the RPE detached neurosensory retina's birder, whose measurement carried out within 1 millimeter diameter of fovea. We managed all the patients conservatively with the proper management of the modifiable factors of risk and topical 0.10% Nepafenac 3 times in a day for minimum 90 days.

We recorded the complete history of the acknowledged risk factors, medical findings, and investigations of laboratory, FFA and OCT results on a well-organized Performa. To perform the statistical analysis, we converted the Snellen BCVA was to the values of Log-MAR with the utilization of VA converter online. The main outcome measures were the calculations of the baseline and final BCVA & CFT. We used the SPSS V.20 software for the statistical analysis of the collected information. We used the averages and standard deviations to represent the categorical values. We used the Chi square method for the comparison among different variables. We used the paired sample T-test for the comparison of the baseline & final values of BCVA & CFT. A P value of < 0.050 was the significant one.

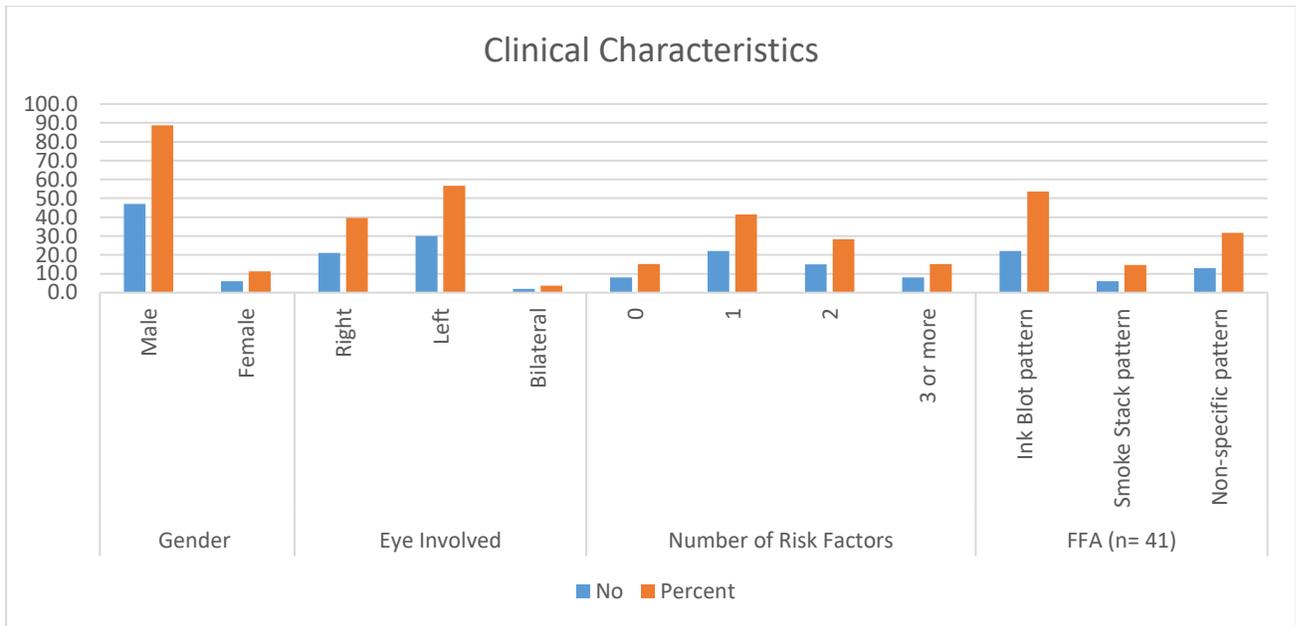
RESULTS:

Total 55 eyes of fifty three patients were fulfilling the inclusion standard for final examination. The average age of the samples was 36.660 ± 6.240 years with a range from 24 to 54 years. Sixty four percent patients were in the 4th decade of life. Medical profile of the population of this research work is available in Table-1.

Table-I: Clinical characteristics of the study population. (n= 53)

Characteristic		No	Percent
Gender	Male	47.0	88.67
	Female	6.0	11.32
Eye Involved	Right	21.0	39.62

	Left	30.0	56.60
	Bilateral	2.0	3.77
Number of Risk Factors	0	8.0	15.09
	1	22.0	41.50
	2	15.0	28.30
	3 or more	8.0	15.09
FFA (n= 41)	Ink Blot pattern	22.0	53.65
	Smoke Stack pattern	6.0	14.63
	Non-specific pattern	13.0	31.70

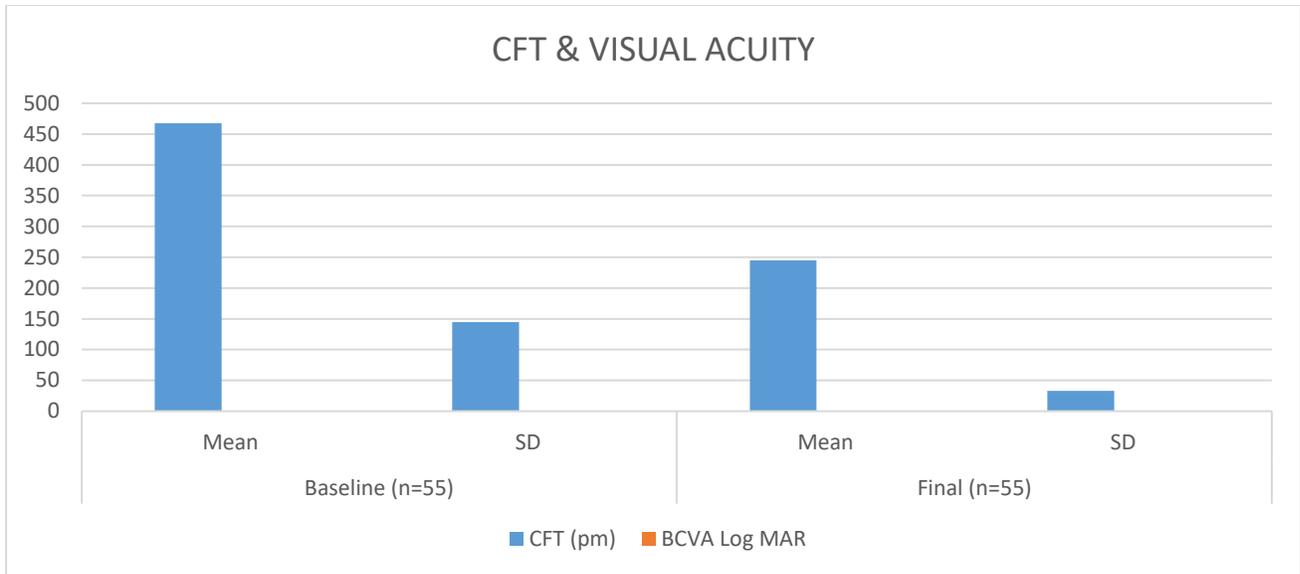


Visual involvement’s median duration at appearance time was twelve days. Total 58.49% (n: 31) patients appeared within fourteen days after the start of the disease. The well-known risk factors for the complication of acute-CSCR were available in 84.710% (n: 45) patients. On the OCT, average CFT at the baseline was $467.490 \pm 144.80\mu\text{m}$ with a range from

208 to $891\mu\text{m}$ in eye with infection in comparison with the $233.410 \pm 21.240\mu\text{m}$ with a range from 184 to $288\mu\text{m}$ in the healthy eye, while average CFT calculations at the last follow-up was $244.670 \pm 32.990\mu\text{m}$ which was significant statistically as compared to the values of baseline (Table-2).

Table-II: Initial and final CFT and Visual Acuity profile.

Variable	Baseline (n=55)		95% CI	Final (n=55)		95% CI	p Value
	Mean	SD		Mean	SD		
CFT (pm)	467.49	144.8	429.220 - 505.760	244.67	32.99	235.950 - 253.390	< 0.0100
BCVA Log MAR	0.47	0.25	0.410 - 0.540	0.18	0.14	0.140 - 0.220	< 0.0100

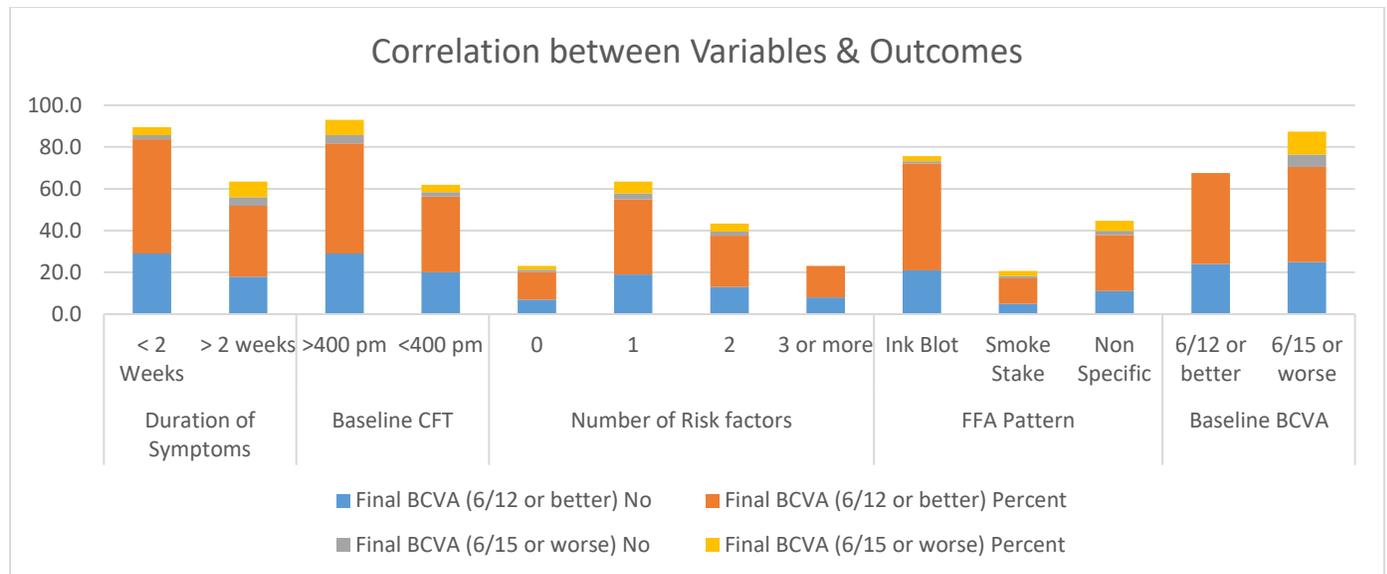


We found a strong association of the final BCVA and the measurements of the final OCT in the eye with infection (Pearson $r = 0.5170$, $p < 0.010$) & values of OCT of other eye ($r = 0.2920$, $p = 0.0370$). While the association among the values of final BCVA & baseline OCT was not much significant ($r = 0.2120$, $p = 0.120$). At the time of presentation, average log-MAR BCVA was 0.470 ± 0.25 and the final average log-MAR BCVA was 0.180 ± 0.140 ($p < 0.010$). There was a

strong association between the final and initial BCVA ($r = 0.6320$, $p = 0.000$). We analyzed the relationship between the final BCVA & various variables as symptom's duration, CFT at baseline, amount of risk factors, pattern of FFA, and BCVA at baseline. Among these different variables, only BCVA at baseline displayed the significant association with the value of final BCVA ($p = 0.030$) as presented in Table-3.

Table-III: Association of study variables with final visual outcome.

Variable		Final BCVA				p value
		(6/12 or better)		(6/15 or worse)		
		No	Percent	No	Percent	
Duration of Symptoms	< 2 Weeks	29.0	54.71	2.0	3.77	0.3540
	> 2 weeks	18.0	33.96	4.0	7.54	
Baseline CFT	>400 pm	29.0	52.72	4.0	7.27	1.0000
	<400 pm	20.0	36.36	2.0	3.63	
Number of Risk factors	0	7.0	13.20	1.0	1.88	0.8260
	1	19.0	35.86	3.0	5.66	
	2	13.0	24.52	2.0	3.77	
	3 or more	8.0	15.09	0.0	0.00	
FFA Pattern	Ink Blot	21.0	51.21	1.0	2.43	0.6700
	Smoke Stake	5.0	12.19	1.0	2.43	
	Non Specific	11.0	26.82	2.0	4.87	
Baseline BCVA	6/12 or better	24.0	43.63	0.0	0.00	0.0300
	6/15 or worse	25.0	45.45	6.0	10.90	



DISCUSSION:

The conservative approach for the observation and management of the modifiable factors of risk remains backbone for the administration of the recently identified patients with lower than 3 month of duration in acute CSCR [6, 9]. The research work on populations of our country Pakistan suffering from acute-CSCR have stated the range of the age was from 39.090 to 40.0 years, with male preponderance from 81.30% to 90.190% and unilateral involvement in 65.50% patients [10, 11]. Different research works from whole country have stated the range of the average age from 40.0 to 44.70 years, male predominance from 74.60% to 90.0% & unilateral involvement in 58.0% to 91.630% in patients suffering from CSCR [1, 7, 12-14]. CSCR appears as a rise in the full-thickness neuro-sensory retina from high reflective RPE chorio-capillaries complex detached by an optically empty zone without or with RPE-detachments & importantly enhanced choroidal thickness among patients [15, 16].

In other research work, the patients of CSCR with the spontaneous resolution average OCT at baseline macular thickness was 473.0 μ m & it improved to 269.0 μ m after three month of follow-up [17]. There was good prognosis for long term among patients with CSCR it acute-CSCR resolved spontaneously and followed the treatment according to Wong [18]. Maalej in his research work discovered that factors related with the adverse functional outcome in the acute-CSCR were the adverse initial VA, high height of SRF and the amount of the PED's [19]. Loo stated that factors related with decreased VA during the follow-up for long time in the patients with idiopathic acute-CSCR including recurrence, RPE detachment and SRF [20].

There are some limitations of this research work as the sample size of this research work was much low and we did not carry out the in depth OCT traits of the study samples.

CONCLUSION:

This disease of acute-CSCR is self-limiting complication that normally resolves in 3 months with no aggressive therapy with good visual acuity. Presenting the visual acuity of 6.0/12.0 or better has association with the favorable outcome of vision in the patients suffering from acute-CSCR.

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