PSYCHOLOGICAL PROFILE OF PATIENTS WITH CENTRAL SEROUS CHORIORETINOPATHY: ROLE OF PERSONALITY, ANXIETY AND DEPRESSION

INTRODUCTION:

According to Hussain and Gass, central serous chorioretinopathy (CSCR) is the fourth most common nonsurgical retinopathy. It is an idiopathic localized serous detachment of the sensory retina at the macula associated with leakage at the level of retinal pigment epithelium (RPE) due to hyperpermeability of the choriocapillaris through one or more sites [1][2].
Von Graefe was the first to record it in literature, and Duke Elder popularized the term CSCR [3]. With a male preponderance (male:female ratio 3:1–10:1), CSCR usually affects young or middle-aged individuals (35–55 years old) singly, while the females are typically older. There isn't a clear racial correlation[4].
The majority of patients with central serous retinopathy, according to Bennett's (1955) assessment, had a "tense obsessional or inadequate personality" or were plagued by "worry or over-work." "A great awakening of interest in the effects of stress on the organism acting through the nervous and endocrine systems" is what he said, predicting a significant impact from psychological variables[5].
Obstructive sleep apnea (OSA), endogenous hypercortisolism (Cushing syndrome), systemic hypertension, psychopharmacologic medication use, pregnancy, Helicobacter pylori infection, and renal dialysis are examples of systemic connections. However, intraocular corticosteroids do not seem to be linked to CSC, although systemic corticosteroid use is.[6]

Patients typically report minor dyschromatopsia, metamorphopsia, micropsia, unilateral blurring of abrupt onset, and sporadic paracentral scotoma. Visual acuity (VA) rarely declines below 6/18, however it can range from 6/9 to 6/60. A low-strength convex lens could help treat acquired hypermetropia. When acute, the fovea is involved in a round or oval detachment of the sensory retina at the macula. One or more depigmented RPE foci pigment epithelial detachments (small PEDs) of varying diameters may be evident inside the neurosensory detachment during chronic presentation or recurrence. Additionally, in these situations, little patches of RPE atrophy and hyperplasia may be visible elsewhere in the posterior pole on fundus autofluorescence imaging.[7]

RPE and photoreceptor degradation occur gradually with prolonged separation. Fundus fluorescein angiography and fundus auto fluorescence (FAF) show a gravitational tract when fluid travels downward in a gravity-dependent way, which rarely progresses to bullous CSR. To rule out a congenital pit, the optic disc needs to be inspected. About 80% of people regain near-normal vision when it resolves on its own in three to six months. Recurrence occurs in as many as 50% of cases. About 15% of patients have a chronic course that lasts more than a year.[8]With or without one or more minor RPE detachments, optical coherence tomography (OCT) displays an optically empty neurosensory elevation. Macrophages with fluorophores from phagocytized outer segments are responsible for the punctate white reflector spots visible in the retina's hairy photoreceptor layer. Choroid thickening is visible on enhanced depth imaging OCT (EDI-OCT).[9]

An early hyperfluorescent patch is visible on fundus fluorescein angiography, and it eventually grows into a "ink blot" or occasionally a vertical column called a "smokestack."

After then, the dye will progressively permeate the disconnected region. The dye will "pool" in the area where a PED is present. Chronic or recurring illness is characterized by widespread areas of leakage or many focal leaks.[10]Areas of hyperfluorescence resulting from choroidal hyperpermeability can be seen in the mid-stage of indocyanine green angiography (ICGA), whereas the early phase may reveal dilated or damaged choroidal arteries at the posterior pole.[11] Chronic CSCR is frequently challenging to interpret, particularly when fluorescein angiography (FA) shows areas of leakage. On the other hand, ICGA reveals dilated choroidal veins and choroidal leaking.[12]

In many situations, just observation is enough. RPE tear formation can happen spontaneously or in response to treatment techniques, if any. For acute CSR, oral spironolactone (40 mg twice daily) causes faster subretinal fluid resorption than no therapy. If at all possible, corticosteroids should be stopped, especially in situations that are severe, chronic, or recurrent. Compared to traditional photocoagulation, subthreshold (micropulse) diode laser treatment of the RPE site of leakage has demonstrated promising outcomes with reduced retinal damage. In severe chronic instances, reduced dose photodynamic treatment (PDT) with 50% light intensity and 30% to 50% of the dose used for choroidal neovascularization (CNV) usually produces good results with a decreased frequency of major choroidal ischemia.[13]PDT may be used in conjunction with intravitreal anti-vascular endothelial growth factor (anti-VEGF) medicines. Agents such as aspirin, beta-blockers, mifepristone, and eplerenone may be helpful in certain acute instances.[14]

It is impossible to overstate the significance of mental health for general wellbeing. It is one of the main causes of disability worldwide and is steadily rising to the top of the list of causes of disability-adjusted life years (DALY). According to Yannuzi (1986), personality qualities (Type A) are linked to the cause of CSCR.[15] Since then, a number of additional psychological variables have been linked to the pathophysiology of CSCR, including addiction (especially smoking), personality disorders, anxiety, stress, and obsessive-compulsive disorders. There is a two-way relationship; psychological variables influence the disease's etiology as well as its effects. Furthermore, it has been shown to alter the prognosis and course of CSCR.[16]

There are numerous ways in which stress and mental health conditions contribute to the pathophysiology, including raising the risk of cardiovascular disease, causing epigenetic changes, disrupting the hypothalamic-pituitary-adrenal (HPA) axis, altering the immunological and metabolic profiles, and changing homeostasis.In addition to this, psychotropic medication use has been linked to an increased risk of CSCR [17][18] Additionally, CSCR has been closely linked to erectile dysfunction (ED) and OSA, both of which are partially classified as psychiatric disorders.[6]

Since the 1930s, psychosomatic linkages with ophthalmology have been mentioned, and they are now more important than ever.[19] One of the eye conditions with a significant psychological component is CSCR, and managing it also entails taking care of psychological health including stress and anxiety.[20] Even while there is evidence that the consequences of mental diseases differ across developed and developing countries, there have been very few studies on the psychiatric elements of CSCR, especially from our region of the world.[21] Therefore, we conducted this study to determine the prevalence of CSCR in our population and the relationship it has with its mental correlates, specifically Type A personality trait,

anxiety disorders, and depressive disorders. We also compared the results with those of other nonretinal ocular diseases.

METHODS:

With approval from the institutional ethics committee, this 12-month comparative cross-sectional study was conducted at a government tertiary care hospital between July 2024 and June 2025. Every adult patient who visited our institute's ophthalmology out-patient department (OPD) on each of the three predetermined weekdays (Monday, Wednesday, and Friday) and was later diagnosed with CSCR was included in our study using purposive sampling.

These patients underwent routine clinical history, physical examination, and investigation procedures when they first arrived at our outpatient department. They were specifically examined for VA, contrast sensitivity, digital fluorescein angiography (DFA), anterior segment assessment using a slit-lamp biomicroscope, posterior segment evaluation using a 90 D biomicroscope, and 3 D OCT with a macular scan. They were handled in accordance with the current procedure.

Following a thorough explanation of our study to these patients, their valid consent was obtained if they decided to participate. There were no specific exclusion criteria; the existence of CSCR served as the selection criterion. They filled out a semi-structured proforma with their demographic information, pertinent medical history (e.g., recurrent disease, chronic CSCR, bilateral involvement, family history, coronary artery disease (CAD), hypertension, smoking, steroid use, history of mental illness and/or medication, OSA, etc.), and results of their ocular examination (VA in log of minimum angle of resolution [LogMAR], central macular thickness from OCT, etc.). There were 182 CSCR patients in all.

Patients with nonretinal ocular pathology (refractive errors, corneal disorders, cataracts, etc.) who visited our outpatient department were selected as a reference group. They gave their valid consent after being informed about the study. The comparison group matched the cases in terms of gender and age. There were 182 patients in each group.

Following blinding, both of these groups were sent to the psychiatric department for additional assessment (the psychiatrist was unaware of which patients were in which group). They were initially assessed clinically (history and mental status evaluation) for any pre-existing psychopathology in the psychiatry department. Following that, rating scales were used to rate each subject's performance.

An accepted method for identifying Type A personalities is the Framingham Type A scale (FTAS), which was developed from the seminal Framingham Heart Study. Five of the ten questions on this test have 4-point Likert scale responses, while the other half have Yes/No responses. Numerous research have reported different cut-off score criteria, which have been further questioned. Furthermore, our population's normative values were unavailable.Consequently, we have adopted a less complex and contentious approach like to Yannuzzi's. According to the norm, the replies to the first five items received scores of 0, 0.33, 0.67, and 1; higher scores indicate a Type A personality trait, and vice versa. Responses to the final five questions received scores of 0 for "No" and 1 for "Yes," with a score of 1 indicating Type A traits. There was no need for a cut-off score because the cumulative scores of the two groups were compared.[22]

Every patient in both groups had their symptoms of anxiety and depression assessed. Max Hamilton developed the widely used Hamilton Anxiety Rating Scale (HAM-A) and Hamilton

Depression Rating Scale (HDRS or HAM-D). Likert-scale scoring is used to rate the items on the 14-item HAM-A and the 17-item HDRS, which are clinician-rated measures used to gauge the intensity of anxiety and depressive symptoms, respectively. The sum of the scores indicates how severe the symptoms are.Mild to moderate anxiety is indicated by a HAM-A score of less than 17, moderate to severe anxiety is indicated by a score of 25 to 30, and extremely severe anxiety is indicated by a score of >30. Similar to this, an HDRS score of 0–7 indicates normal depression, 8–13 mild depression, 14–18 moderate depression, 18–22 severe depression, and 23 and higher very severe depression.[23] Major anxiety disorders and depression were also observed to be clinically present, and therapy was given.

Following the provision of psychological treatment and, in pertinent circumstances, follow-up counsel, the patients were returned to their original department for management.

The researcher answered every question on the rating scales, including the self-rated ones, and recorded the answers to ensure consistency (because vision impairment varied). The Statistical Package for the Social Sciences (SPSS)-23 was used to compile and evaluate the data that was gathered from each participant using the proper statistical measures.

RESULTS:

Table 1.

Characteristics of the patients

CSCR patients (case group: *n*=182)		
Age (in years)	38.54±6.49 (range: 28–55)	
Characteristics	**Number**	**Frequency**
Gender		
Male	162	89.0%
Female	20	11.0%
Residence		
Urban	88	48.4%
Rural	94	51.6%
Associated history		
Family history of CSCR	6	3.3%
Coronary artery disease	42	23.1%
Hypertension	56	30.8%
Diabetes	60	33.0%
Smoking	90	49.5%
Alcohol use	50	27.5%
History of steroid use	36	19.8%
History of psychotropic medications	30	16.5%
Use of PDE-5 inhibitors	8	4.4%
Type of CSCR		
Acute	154	84.6%
Chronic	28	15.4%
Bilateral	36	19.8%
Recurrent	42	23.1%
Comorbidities		

CSCR patients (case group: *n*=182)		
(diagnosed during evaluation)		
Anxiety disorder	72	39.6%
Major depression	44	24.2%
Associated history		
Coronary artery disease	54	29.7%
Hypertension	58	31.9%
Diabetes	70	38.5%
Smoking	58	31.9%
Alcohol use	40	22.0%
History of steroid use	50	27.5%
History of psychotropic medications	34	18.7%

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Table 2.

Characteristics of the comparison group

Comparison group: non-chorioretinal ocular conditions (*n*=182)		
Age (in years)	38.79±7.78 (range: 28–55)	
Characteristics	**Number**	**Frequency**
Comorbidities (diagnosed during evaluation)		
Anxiety disorder	20	11.0%
Major depression	4	2.2%
Nature of disease		
Refractive error	82	45.1%
Corneal diseases	10	5.5%
Cataract	28	15.4%
Trauma	12	6.6%
Infections	22	12.1%
Glaucoma	28	15.4%
Associated history		
Coronary artery disease	22	12.1%
Hypertension	28	15.4%
Diabetes	44	24.2%
Smoking	36	19.8%
Alcohol use	40	22.0%
History of steroid use	8	4.4%
History of psychotropic medications	16	8.8%

Table 3.

Comparison between CSCR and non-chorioretinal diseases groups (***n***=182 for both the groups)

Scales	**Scores (Mean±SD)**		**Statistic (*t*)**	**Significance (*P*)**
	CSCR	**Non-chorioretinal diseases**		
FTAS	5.25±1.06	4.73±1.42	2.783	0.006*
HAM-A	20.96±9.88	11.02±6.34	8.077	0.000*
HDRS	9.36±6.34	6.37±4.75	3.600	0.000*

**P*-value significant at 0.05 level. CSCR=central serous chorioretinopathy, FTAS=Framingham Type A scale, HAM-A=Hamilton Anxiety Rating Scale, HDRS=Hamilton Depression Rating Scale, SD=standard deviation

188 # Table 4.

189 Association with comorbidities (Fisher exact test and odds ratio)

CSCR versus non-chorioretinal diseases					
	CSCR	**Non-chorioretinal diseases**	***Z*-statistic**	**Fisher exact test probability (*P*)**	**Odds ratio**
Major depression			3.510	0.000*	14.18
Present	44	4			
Absent	138	178			
Anxiety disorder			4.192	0.000*	5.30
Present	72	20			
Absent	110	162			

190 **P*-value significant at 0.05 level. CSCR=central serous chorioretinopathy

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DISCUSSION:

In line with previous research, our study revealed that CSCR was common in middle-aged people in their 40s, with a definite male preponderance (male:female ratio 8:1) and 60% of these patients holding a white-collar profession.[14,25] According to previous research, CSCR patients have moderate to severe visual loss. The best corrected VA (BCVA) measured at presentation ranged from Snellen's 6/18 to 6/60, or LogMAR 0.48–1.00, with a mean of 0.72 ± 0.20 and a median value of 0.78.The mean central macular thickness (CMT) as determined by OCT was 469.12 ± 67.21 μm, with a range of 325 to 556 μm.
3.3% of the individuals with CSCR had a positive family history of the same condition. Of the patients, 23% had CAD, 31% had hypertension, and 33% had diabetes. Half of the CSCR patients were found to smoke. different studies have indicated a variety of different risk variables, as listed in Table 1.

Only 15% of individuals experienced chronic CSCR, compared to 85% who had acute-onset CSCR. Additionally, 23% of cases were recurring, and 20% of cases presented bilaterally. Although the rates do differ by location, these frequencies were somewhat lower than those found in a prevalence research conducted in our nation.
A quarter of CSCR patients had significant depression and 40% had anxiety disorders after mental examination, compared to 11% and 2.2% of patients in the group with non-chorioretinal illnesses, respectively.

When compared to patients with non-chorioretinal disorders, CSCR patients scored significantly higher on tests for Type A personality, clinical anxiety, and depression. The ORs displayed in Table 4 further support the correlation between CSCR and the aforementioned comorbidities; major depression has the highest OR of 14.18, followed by anxiety disorders (OR 5.30). Many research around the world have made a detailed point of this.[20] Additionally, there was a substantial statistical association (P values 0.004 and 0.003, respectively) between the HDRS scores and the CMT and VA scores. This highlights the significance of depression in CSCR even more. The literature has extensively detailed the connection between stress, anxiety, and depression.[17]

Despite our best efforts, our study had certain limitations. The longitudinal course of the illness was not examined, and the sample size was moderate. The presence of visual impairment, which is obviously very distressing to any individual, may have contributed to the scores on psychometric tests. This is a significant confounding factor, but it is unavoidable in studies where patients with any disability are evaluated face-to-face for anxiety and depression.

CONCLUSION:

Notwithstanding these limitations, our research was able to show how personality type, anxiety, and depression in particular play a part in CSCR. Numerous medical conditions, including ischemic heart disease, diabetes, hypertension, and thyroid dysfunction, have already been linked to depression. Therefore, it would be reasonable to acknowledge its significance in CSCR as well. Finally, we would want to point out that improving care will eventually result from the detection of psychiatric illnesses in ophthalmology and vice versa. It is undoubtedly hoped that psycho-ophthalmology would grow in the near future.

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