

STUDY ON CLINICAL PROFILE OF PATIENTS WITH CENTRAL SEROUS RETINOPATHY

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ABSTRACT

BACKGROUND

Central Serous Retinopathy (CSR) is one of the common retinal diseases encountered in young patients, characterized by accumulation of serous fluid between the retinal pigment epithelium (RPE) and neurosensory retina leading to detachment of neurosensory retina at macula. It affects males more often than females. The disease usually resolves itself within three months after the onset, sometimes results in chronic maculopathy that might permanently affect visual acuity. The abnormal permeability of inner choriocapillaries with eventual leak of RPE occurs in CSR. Several risk factors for CSR have been described, although how they relate to the disease is poorly understood. Here, the importance of our study to understand the clinical profile and factors predisposing to the development of CSR.

MATERIALS AND METHODS

It is a cross sectional study, conducted in Department of Ophthalmology, Government Medical College, Thrissur. 88 patients, diagnosed to have CSR and treated in our institution, in a period of 1 year, were selected for study.

RESULTS

CSR found to be more common in young male patients, mostly between 31- 50 yrs. age group. Most of them had acute (75%) and unilateral (90%) presentation. Chronic CSR was associated with poor visual acuity. Majority of our patients (86.3%) improved with medical management.

CONCLUSION

Females had more chance of developing acute CSR than males, in which chronic CSR was more compared to in females. Though statistically insignificant, steroid intake, Hypertension and type A personality were associated with acute CSR in 89.5%. Apart from clinical evaluation, Optical Coherence Tomography (OCT) – a non-invasive technique, has an important role in diagnosis and follow up of CSR, though Fundus Fluorescein Angiography (FFA), a confirmatory tool for identifying the site of the retinal pigment epithelial leaks.

KEYWORDS

Central serous Retinopathy, Retinal pigment epithelium, Optical Coherence Tomography, Fundus Fluorescein Angiography.

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BACKGROUND

Central Serous Retinopathy (CSR) or chorioretinopathy (CSC) is a chorioretinal disease with incompletely understood systemic associations, multifactorial aetiology and complex pathogenesis. It is characterized by a circumscribed serous retinal detachment, usually confined to the posterior pole of the eye caused by leakage of fluid through the retinal pigment epithelium (RPE). Eyes with CSR do not have any signs of inflammation or infiltration of the retina, choroid or RPE.

The pathogenesis of CSR remained unknown for a long time until recently, when new imaging techniques evolved,

shedding some light on the understanding of this disease. But most researchers believe that abnormal permeability of inner choriocapillaries with eventual leak of RPE leading to serous retinal detachment occurring in CSR.¹ The fluid emanating from the choroid escapes into the subretinal space through the defect in the tight junctions between RPE cells. Choroidal changes represent the primary abnormality of the disorder, leading to the current designation as central serous chorioretinopathy (CSC).

Now-a-days we are seeing more & more cases of CSR in ophthalmology clinics compared to previous years. Patients are mostly young, in the 30-50 year age group and affects males more often than females with a ratio of 2:1.² with occasional history of recurrence resulting in visual morbidity & causing anxiety. Various investigators from different part of the world have attempted to detect factors associated with CSR. Despite several studies, there is definite absence of consensus in this regard. In present study we are assessing clinical profile of these patients & also looking for any association of these factors with different types of CSR.

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Aims and Objectives

1. To study the clinical profile of patients with CSR.
2. To study the factors associated with different types of CSR.

MATERIALS AND METHODS

This is a cross sectional study conducted in Department of Ophthalmology, Government Medical College, Thrissur for a period of 1 year, from January 2014 to December 2014. 88 patients, diagnosed to have CSR and treated in this institution were included in study.

Inclusion Criteria

- Ability and willingness to provide informed consent.
- Sex: participants may be male or female.
- Patients with positive scotoma and metamorphopsia suggestive of CSR.

Exclusion Criteria

Participants with any of the following conditions like choroidal neovascular membrane (CNVM), macular choroiditis, exudative retinal detachment due to infiltrative diseases, posterior scleritis & Harada's diseases, were excluded from our study.

Methodology

An informed written consent was obtained from the participants enrolled in the study. Initial work up included collection of demographic data such as age, sex, address, education and occupation. Detailed history, regarding their complaints, the onset and duration of symptoms and past history suggestive of CSR, were taken with use of a pretested semi structured questionnaire.

In the drug history, use of steroids (including topical treatment), sympathomimetics, antibiotics, recent ayurvedic treatment were enquired. Past history of Hypertension, Diabetes mellitus, Collagen vascular diseases, Cushing syndrome, allergic diseases, history suggestive of Obstructive sleep apnoea and Organ transplantation were noted. Personal history were taken to rule out use of alcohol. In pregnant patients, detailed antenatal history was included. Personality was assessed with modified version of Jenkins Activity Survey using self-administrated, multiple type questionnaire. Higher scores were taken as type A personalities.

In ocular examination, Best Corrected Visual Acuity (both distant and near) & Colour vision were recorded. Amsler Grid examination was done to detect metamorphopsia. After doing an anterior segment examination with slit lamp bio microscope, dilated fundus evaluation was done by using Direct & Indirect ophthalmoscope and also by 90D lens using slit lamp.

Visual field was analysed by taking 10-2 field with Humphrey's automated perimeter to look for any central, centrocaecal & paracentral scotomas. SD-OCT (Spectral domain optical coherence tomography) was done in all patients to assess the presence of serous detachment of neurosensory retina at macula. Using OCT central foveal

thickness (CFT) was measured & pigment epithelial detachments (PED) were also noted. Fundus Fluorescein Angiography (FFA) was done in selected patients especially in non-resolving cases to detect focal leakage at the level of RPE, to aid in laser treatment & also to differentiate it from other conditions causing similar macular detachment of neurosensory retina. 2 patterns (classic ink blot & smokestack) were identified & recorded.

Statistical analysis was done with the help of EpiInfo version 7 & SPSS 16.0 software. Qualitative data were analysed using proportion and chi-square test. Quantitative data were analysed using mean & standard deviation.

RESULTS

1. Age Distribution

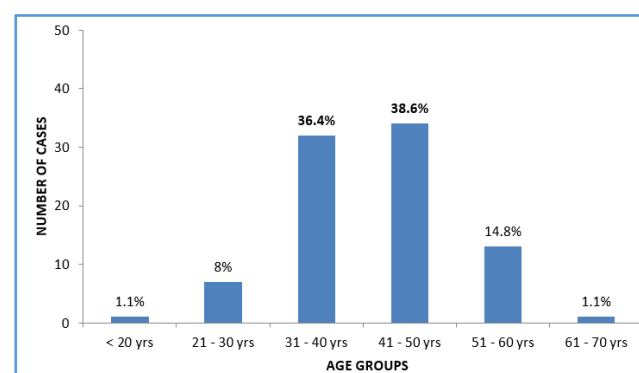


Figure 1

Majority of patients (75%) were between 31-50 yrs. age group with a mean age of 41.57 yrs.

2. Sex Distribution

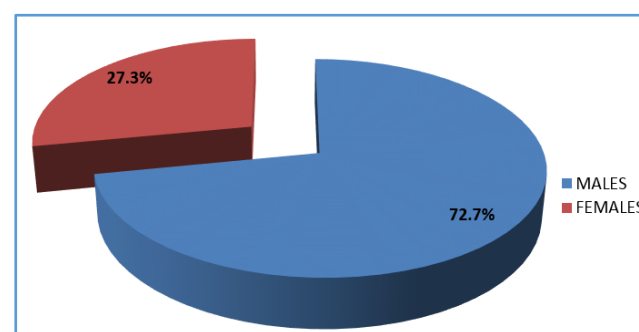


Figure 2

Among the total 88 patients, 24 (27.3 %) were females and 64 (72.7%) were males. This shows the comparison among total patients with CSR.

3. Clinical Presentation

Among 88 patients, 79 patients had unilateral CSR, out of them 75% presented with acute CSR.

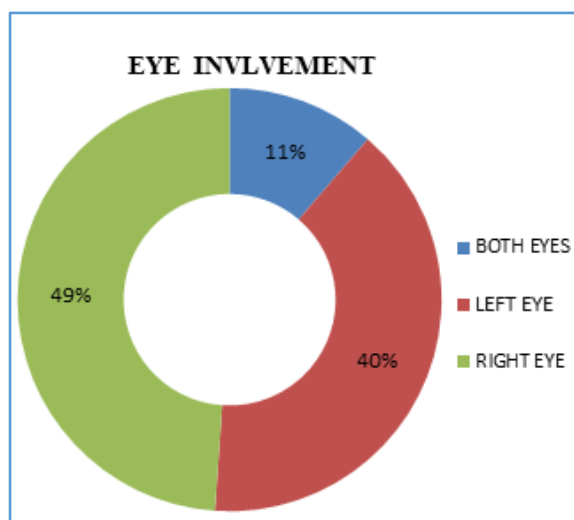


Figure 3(a)

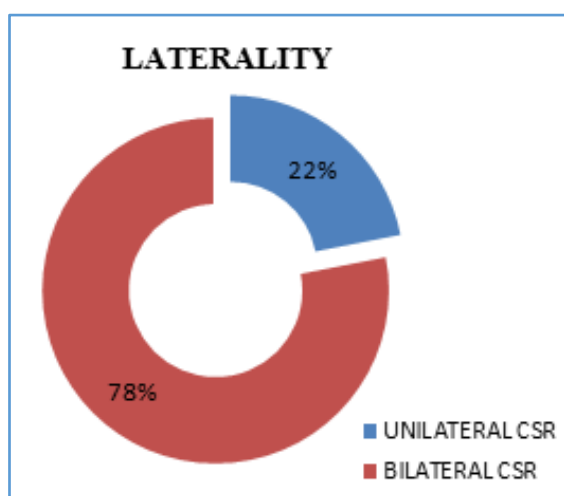


Figure 3(b)

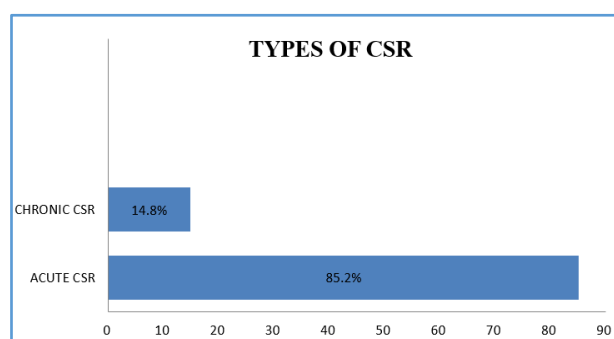


Figure 3 (C)

Among 88 patients, 14 (15.9%) patients given history of recurrence of CSR (previous episodes completely resolved). Acute CSR defined as self-resolving serous retinal detachment within 4 months of onset of symptoms whereas chronic persists for more than 4 months.

4. Symptoms

Most common symptom was positive scotoma (85.2%), followed by metamorphopsia (43.2%).

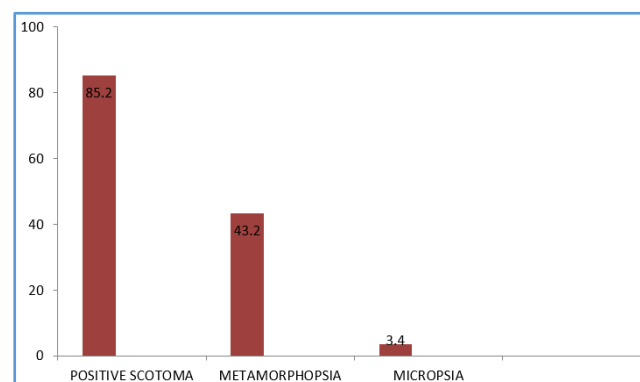


Figure 4

5. Drug Intake

In the study group, 17 (19.3%) patients had history of steroid intake only, 2(2.3%) patients had taken both steroid & beta blockers.

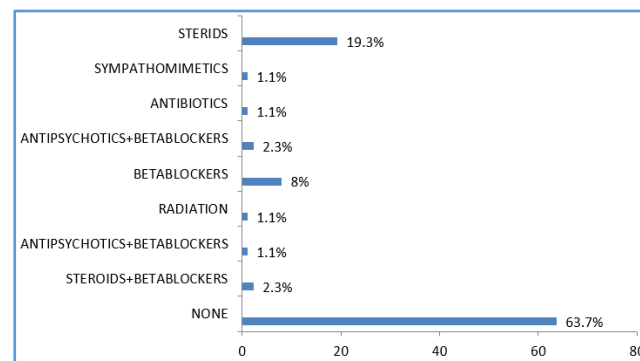


Figure 5

Among the steroid group, 12 (63.2%) patients taken as systemic steroid & 7 patients (36.8%) taken as topical treatment. 14.8% gave history of Ayurvedic treatment.

6. Systemic Diseases

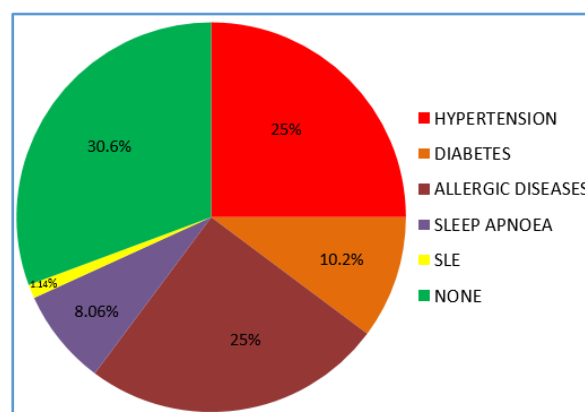


Figure 6

7. Pregnancy & CSR

In present study, among 24 female patients 3 patients were pregnant.

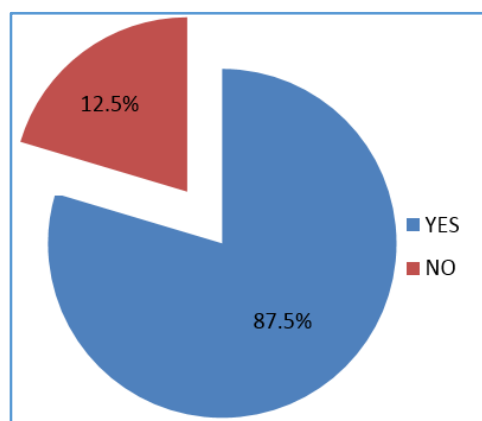


Figure 7

Among all, 11 (12.5%) had type A personality. 16% had habit of drinking alcohol & 11.4% had smoking.

8. Ocular Examination

8a: Visual Acuity

Majority of patients (30.7%) had BCVA between 6/12 and 6/18.

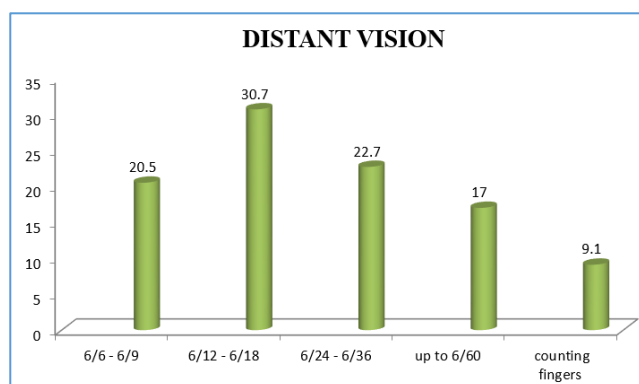


Figure 8a

8b: Near Vision

Majority of patients (53.4%) had BCVA of N6 – N8.

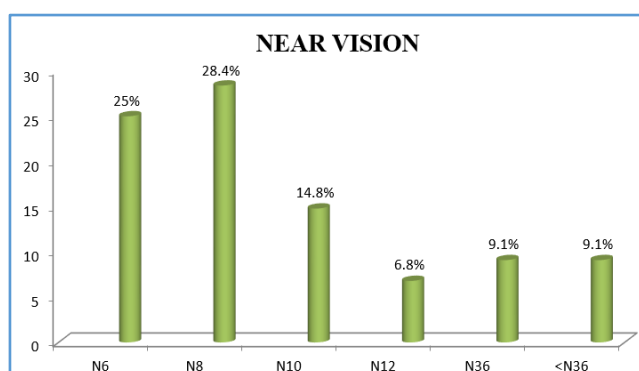


Figure 8b

8C: Fundus Evaluation

Red reflex associated with sub retinal precipitates were the most common finding (47%) in the retina. All patients in the study group had ring reflex at the time of presentation.

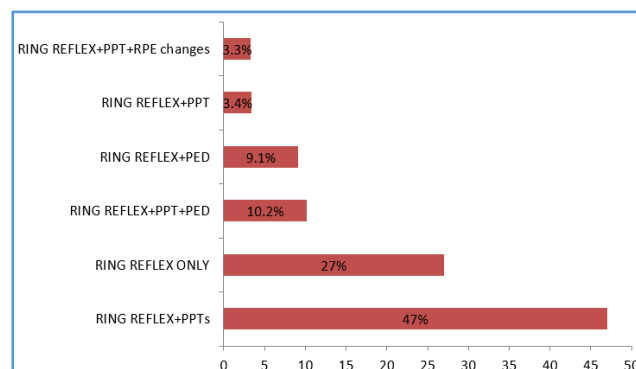


Figure 8c

8D: Visual Field Evaluation

33% had central scotoma & 25.6% had centrocaecal scotoma in visual field 10-2 evaluation.

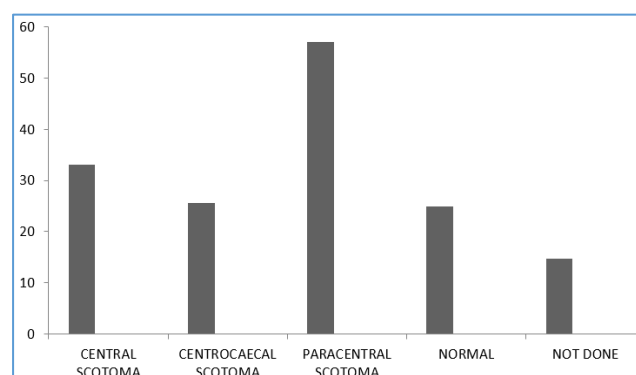


Figure 8d

8E: OCT

Most of the patients (53.3%) had CFT (central foveal thickness) in the range of 201-400 micrometers.

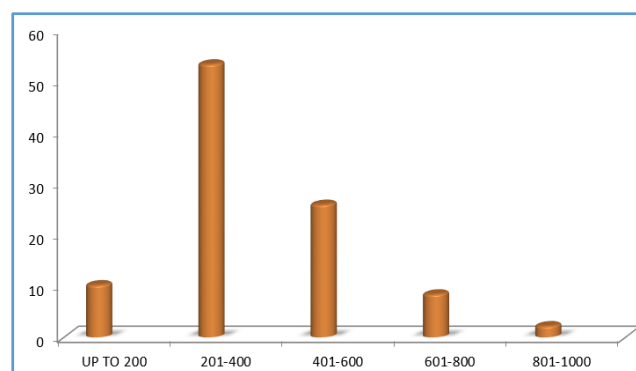


Figure 8e (i)

44.2% showed PED (pigment epithelial detachment) in OCT.

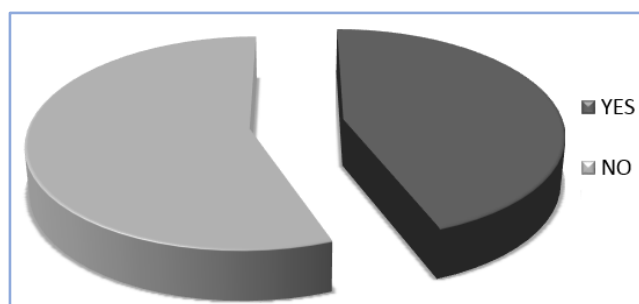


Figure 8e (ii)

8F: Fundus Fluorescein Angiography (FFA)

FFA was done in 24 patients (27.3%). Ink blot pattern was found to be the common finding, accounting for 54.1%.

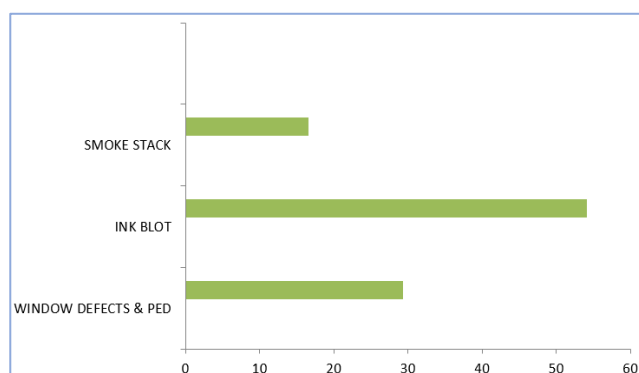


Figure 8f

9. Treatment

In present study, 86.3% have been managed with medical treatment alone. Topical NSAIDs eye drops & oral Serratiopeptidase have been used in our study. 5.7% managed with focal laser. 8% referred for Photo Dynamic Therapy (PDT).

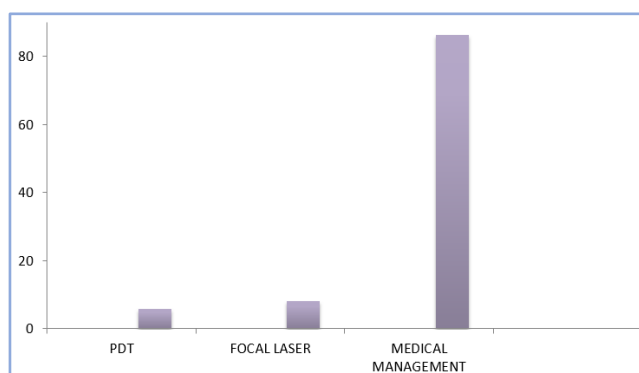


Figure 9

10. Factors Associated with Different Types of CSR

A: Acute Vs Chronic

- Among the total 88 patients, 24 (27.3 %) were females and 64 (72.7%) were males. Among the female patients, 23 had acute presentation, So in our study, females (95.2%) had more chance of developing acute CSR than males (81.2%).18.8% males had chronic CSR compared to 4.8% in females (p value: 0.08).

- In present study, patients with age more than 50yrs had more chance of developing chronic CSR which is statistically significant.
- Among 88 patients, history of previous episodes of CSR is more seen with chronic CSR & which is statistically significant (p value: 0.02).
- Though statistically insignificant, steroid intake was associated with acute CSR in 89.5%.
- Both Hypertension and type A personality were associated with acute CSR, no statistical association were made out for both.
- Among 88 patients, it was found that chronic CSR is related with poor visual acuity; but it is not statistically significant (p value: 0.2).

B: Unilateral Vs. Bilateral

- In present study, older patients had more chance of developing bilateral CSR which is statistically significant (p value: 0.02).
- In present study, patients with allergic manifestations had more chance of developing bilateral CSR which is statistically significant (p value: 0.019).
- In present study, patients with history of previous episodes of CSR had more chance of developing bilateral CSR even though it is not statistically significant.

DISCUSSION

In our study 75% patients were within 30 to 50 years and mean age found to be 41.57 years which is similar to Minnesota study and studies by Wang et al & Ross et al.^{3,4,5} In present study, CSR found to be more common in young male patients which is similar to all studies conducted previously. M: F ratio is 2.6: 1. In our study even though mean age in females found to be 39.37 yrs.; 13 out of 24 female patients had age more than 40 yrs., which is similar to study by Spaide et al, which reported females tend to have older age compared to males.

In present study chronic CSR & bilateral CSR were more associated with older age groups (>50 yrs) which is statistically significant (p: 0.00 & p: 0.002 respectively), which is similar to study by Spaide et al.⁶ Among 88 patients, 85.2% had acute CSR & 89.8% had unilateral CSR, most of the patients were below 50 yrs. In present study, 15.9% had history of recurrence which is comparable to a hospital based retrospective study conducted in 752 patients in Indian population (19.41%).⁷

In present study, 19(21.6%) had history of steroid intake with 63.2% having systemic treatment which is higher than previous studies. The study by Tittl et al done in 230 patients, 9.1% had history of steroid intake.⁸ The retrospective case control study conducted by Haimovici et al showed 14.4% had systemic steroid use.⁹

Hypertension was found in 25% patients which is high compared to other studies. Study conducted in Indian population found 16.09% had Hypertension in CSR patients.⁷ Study by Venkatesh et al also reported a tendency

towards Hypertension in CSR patients.¹⁰ Other systemic diseases were Diabetes (10.2%) and SLE (1.1%). Allergic manifestation found in 25% patients. In our study, allergy was found to be associated with bilateral CSR ($p: 0.019$) which is significant. Association with sleep apnoea was not found to be significant statistically.

Among 88 patients, only 3 were pregnant. Haimovici et al reported significant association with CSR.⁹ The no of patients were too low to provide significant association with this in our study.

In present study, 12.5% had type A personality. The study conducted by Yannuzzi had showed statistically significant association with CSR ($p=0.001$).¹¹ In our study percentage was found to be low, may be due to difference in racial composition or due to subjective nature of questionnaire.

16% of our patients had history of taking alcohol. It was low compared to other studies. In our study, 14.8% patients had history of Ayurvedic treatment which was not seen in any other studies.

OCT was done in all patients to assess the presence of serous detachment of neurosensory retina at macula. Using OCT central foveal thickness was measured & pigment epithelial detachments (PEDs) were also noted. More than 50% had central foveal thickness in the range of 200 to 400 microns. In 44.2% patients had PEDs. In chronic CSR, persisting for more than 4 months, CFT will be reduced compared to acute. In our study, we used OCT to diagnose CSR objectively, but the comparison between acute and chronic was not done.

FFA was done in 27.3% patients based on clinical features; in 14.8% had classic ink blot pattern & only 4.5% had smoke stack pattern (previous studies showed 10% of smoke stack pattern).

About 86% patients managed conservatively, without any active intervention. Only 5.7% had laser treatment and 8% patients were referred for PDT at time of presentation.

Limitations of Study

In our study, factors are recorded based on history & type A personality assessed with questionnaire. This subjective nature may be the limitation of study.

CONCLUSION

1. Most of the patients had acute unilateral CSR, mainly affecting young male patients.
2. Older age and past history were statistically associated with chronic CSR.
3. Older age and allergic diseases were statistically associated with bilateral CSR.

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