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Early Visual and Choroidal Responses to Oral Eplerenone in Acute Central Serous Chorioretinopathy: A Retrospective Comparative Cohort Study

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Abstract

Purpose: This study aims to evaluate the effectiveness and safety of oral eplerenone in accelerating visual and anatomical recovery in patients with acute central serous chorioretinopathy (CSCR).

Design: This is a retrospective comparative cohort study.

Methods: Medical records of consecutive patients with first-episode acute CSCR (<3 months symptom duration) treated at a tertiary eye care center between December 2021 and May 2026 were reviewed. Patients received either oral eplerenone (50 mg/day for three months) or observation. Best-corrected visual acuity (BCVA), subretinal fluid (SRF) height, and subfoveal choroidal thickness (SFCT) in both affected and fellow eyes were assessed using spectral-domain optical coherence tomography (SD-OCT) at baseline, one month, and three months. The primary outcome was the proportion of eyes achieving a BCVA of 6/6 at one month. Secondary outcomes included complete SRF resolution, reduction in SRF height, changes in SFCT, and treatment-related adverse events.

Results: Seventy-one eyes of 71 patients were included (34 eplerenone; 37 observation). Baseline demographic, visual, and OCT characteristics were comparable between groups (all $p > 0.05$). At one month, significantly more eyes in the eplerenone group achieved BCVA of 6/6 than the observation group (76.5% vs. 40.5%, $p = 0.002$). Complete SRF resolution was also more frequent with eplerenone (32.4% vs. 10.8%, $p = 0.026$), with a greater reduction in SRF height (183.4 ± 50.6 µm vs. 30.4 ± 21.9 µm, $p < 0.001$). By three months, visual acuity (91.2% vs. 86.5%, $p = 0.712$) and complete SRF resolution (61.8% vs. 43.2%, $p = 0.119$) were no longer significantly different between groups. Although SFCT in the affected eye showed greater numerical reduction with eplerenone, between-group differences did not reach statistical significance. In contrast, fellow-eye SFCT was significantly lower in the eplerenone group at both one month (359.6 ± 65.2 µm vs. 406.7 ± 69.6 µm, $p = 0.004$) and three months (339.2 ± 70.3 µm vs. 383.1 ± 79.9 µm, $p = 0.015$). No serious ocular or systemic adverse events were observed.

Conclusions: Oral eplerenone was associated with faster early visual recovery and SRF resolution in acute CSCR but did not alter the favorable three-month prognosis compared with observation. The significant bilateral reduction in the SFCT may be associated with a systemic pharmacological effect of mineralocorticoid receptor blockade on the choroid rather than local disease resolution alone. However, these interpretations remain hypothetical and require further evaluation in adequately powered multicenter randomized controlled trials.

Categories: Ophthalmology
Keywords: acute central serous chorioretinopathy, eplerenone, mineralocorticoid receptor antagonist, optical coherence tomography, subfoveal choroidal thickness, subretinal fluid, visual acuity

Introduction

Central serous chorioretinopathy (CSCR) is defined by a serous detachment of the neurosensory retina and/or the retinal pigment epithelium (RPE). These changes are linked with fluid leakage from the RPE into the subretinal space and are largely confined to the macula [1,2]. CSCR is one of the most frequent diseases, which mainly affects young adult males with an incidence of about 5.8 per 100,000 [3]. It is the fourth most common nonsurgical exudative retinopathy after diabetic retinopathy, age-related macular degeneration, and retinal vein occlusion [4]. More prevalent in Asian and Caucasian people than in other ethnic groups [5]. Acute disease may present with metamorphopsia, micropsia, dyschromatopsia, central or paracentral scotoma, and loss of central vision. Acute CSCR is a benign condition that typically resolves spontaneously within 2-3 months [6]. However, in the long term, 30-50% of people will relapse with the disease [7].

In 5% to 10% of untreated cases, chronic CSCR, also called diffuse retinal epitheliopathy, develops. It is

characterized by extensive changes in the RPE and chronic serous retinal detachment. Others may exhibit pigment epithelium detachment or cystoid retinal degeneration [7]. The chronic fluid accumulation in CSCR causes slow and irreversible damage of the photoreceptors, which has a strong impact on the visual prognosis [8]. In a previous study, chronic CSCR was defined as patients with confirmed subretinal fluid (SRF) with or without RPE separation on optical coherence tomography (OCT) and persistent or progressive visual impairment for more than three months [8]. The literature reports that 15% of acute cases may progress to chronic CSCR with poor visual recovery and irreversible photoreceptor damage [9]. Thus, there is a need for a safe and effective rapid treatment option for acute CSCR, particularly for young adults with the greatest incidence.

Management of CSCR depends on the duration of disease and its effect on vision. The acute CSCR therapy is often simple, involving observation, monitoring with optical coherence tomography, withdrawal of corticosteroids if possible, and control of systemic risk factors [4]. Recurrent or chronic episodes require treatment to prevent permanent damage to the photoreceptors. Half-dose or half-fluence verteporfin photodynamic therapy is the preferred treatment and leads to better anatomical and functional results than subthreshold micropulse laser therapy [10]. Standard laser treatments cure leakage only outside the fovea. The anti-VEGF agent is used only in secondary choroidal neovascularization [11].

One therapeutic possibility is a specific mineralocorticoid receptor antagonist, eplerenone. CSCR may be caused by overactivation of the mineralocorticoid receptor, which leads to thickening and increased permeability of choroidal vessels [6,12]. Observational studies have suggested that eplerenone may shorten the time to resolution of SRF and improve visual recovery, particularly when treatment is initiated before irreversible retinal changes develop [8]. However, later randomized trials, like the VICI trial, failed to demonstrate a significant benefit of eplerenone in chronic CSCR [13]. In contrast, the efficacy of eplerenone in acute CSCR is still uncertain, as the trial did not include patients with acute illness. In view of this uncertainty, a retrospective analysis of patients with acute CSCR treated with eplerenone may provide useful real-world data on its anatomical and functional outcomes and may help identify patient groups that could benefit from early treatment.

Materials And Methods

This retrospective comparative cohort study was carried out at a tertiary care hospital's Department of Ophthalmology from December 2021 to May 2026. The study was reviewed and approved by the Institutional Ethics Committee of Calcutta National Medical College (Approval No. EC-CNMC/2024/500). As the study was a retrospective review of medical records, it was conducted in accordance with the ethical standards of the Institutional Ethics Committee, with appropriate measures taken to maintain patient confidentiality. The medical records of consecutive patients diagnosed with acute CSCR during the study period were retrospectively reviewed. The diagnosis of acute CSCR was established based on characteristic clinical findings and confirmed by spectral-domain optical coherence tomography (SD-OCT), demonstrating serous neurosensory retinal detachment involving the macula.

Patients were eligible for inclusion if they were aged 18 years or older and presented with a first episode of acute CSCR, with a duration of symptoms of less than three months. Adequate clinical records and good-quality OCT imaging, sufficient for evaluating treatment response and anatomical outcomes, were also required.

Patients were excluded if they had a previous episode of CSCR or evidence of chronic CSCR. Patients with choroidal neovascularization or other retinal or macular diseases that could affect visual acuity or OCT findings were also excluded. Those who had received previous treatment for CSC, including focal laser photocoagulation, photodynamic therapy, intravitreal therapy, or mineralocorticoid receptor antagonist therapy, were excluded. Patients with significant media opacity that prevented acquisition of high-quality retinal imaging, those who had undergone ocular surgery within the preceding six months except for uncomplicated cataract surgery, and those with incomplete clinical records or inadequate OCT imaging that precluded reliable assessment of baseline or follow-up outcomes were also excluded. Eplerenone was not prescribed to patients with contraindications to mineralocorticoid receptor antagonists, including renal impairment or hyperkalemia.

Patients were allocated to one of two groups according to the treatment strategy employed. As this study was a retrospective, nonrandomized cohort study, treatment allocation was not randomized. The decision to initiate eplerenone or pursue observation was made by the treating ophthalmologist as part of routine clinical care, based on the clinical assessment and the treatment strategy adopted for each individual patient. Patient preference and financial considerations were also considered. The treatment group received oral eplerenone 50 mg once daily for three months. Baseline serum potassium and renal function were assessed before treatment initiation. Serum potassium levels and renal function were monitored monthly throughout the treatment period in accordance with the institutional protocol. The observation group received regular clinical and SD-OCT follow-up in accordance with our standard institutional protocol.

At baseline, all patients underwent a comprehensive ophthalmic examination, including assessment of best-corrected visual acuity (BCVA) using a Snellen visual acuity chart and converted to the logarithm of the

minimum angle of resolution (logMAR) for analysis, slit-lamp biomicroscopy, intraocular pressure measurement by Goldmann applanation tonometry, and dilated fundus examination. SD-OCT was also performed. Demographic and relevant clinical information, including age, sex, duration of symptoms, and pertinent medical history, was recorded for all patients. Macular imaging was performed using a spectral-domain optical coherence tomography system (SPECTRALIS HRA + OCT, Heidelberg Engineering, Heidelberg, Germany) with software version HEYEX 6.12. The OCT parameters recorded at baseline included the maximum height of SRF at the fovea, subfoveal choroidal thickness (SFCT) in the affected eye, and SFCT in the fellow eye. SFCT was measured as the vertical distance between the outer border of the retinal pigment epithelium-Bruch's membrane complex and the choroid-sclera interface at the subfoveal point. Measurements were taken by two separate masked graders, and disagreements were settled through consensus.

Patients were evaluated at baseline, one month, and three months after starting treatment or observation. At each subsequent visit, BCVA, OCT imaging for SRF height, and SFCT measurements were repeated. Patients taking eplerenone were monitored for treatment-related side effects such as hyperkalemia, hypotension, and deterioration of renal function.

The primary outcome measure was the proportion of eyes achieving a BCVA of 6/6 at one month. The secondary outcome measures included the proportion of eyes achieving complete resolution of SRF at month 1 and at month 3, the change in the SFCT in the affected eye, the change in the SFCT in the fellow eye, and the incidence of treatment-related adverse events. The change in maximum foveal SRF height was assessed at one month and at three months. The change at one month was calculated relative to baseline, whereas the change at three months was calculated relative to the one-month measurement to evaluate the additional change in SRF height between months 1 and 3.

Statistical analyses were carried out using IBM SPSS Statistics for Windows, Version 32 (Released 2026; IBM Corp., Armonk, New York, United States). Continuous variables are represented as mean ± SD for normally distributed data and median (IQR) for nonnormally distributed data, while categorical variables are represented as frequencies and percentages. The normality of continuous variables was determined using the Shapiro-Wilk test. Continuous variable comparisons between groups were made using the independent-samples t-test for normally distributed data or the Mann-Whitney U test for nonnormally distributed data. Categorical variables were compared using the Chi-square test or Fisher's exact test, whichever was applicable. All statistical tests were two-sided, with a p-value <0.05 indicating statistical significance.

Results

A total of 78 eyes from 78 patients met the inclusion criteria and were enrolled in this retrospective study. Seven patients (four in the observation group and three in the treatment group) were lost to follow-up before the one-month visit and were excluded from the final analysis. Consequently, 71 eyes from 71 patients were included, comprising 34 eyes in the treatment group and 37 eyes in the observation group.

The mean age was 31.3 ± 8.8 years in the treatment group and 32.1 ± 7.9 years in the observation group, with no significant difference between the groups (independent-samples t-test, p = 0.69). Gender distribution was also comparable, with 27 males and seven females in the treatment group and 33 males and four females in the observation group (Fisher's exact test, p = 0.332). Baseline characteristics were similar between the groups (Table *1*).

Characteristic	Treatment (n = 34)	Observation (n = 37)	Test statistic	p-value
Age in years (mean ± SD)	31.3 ± 8.8	32.1 ± 7.9	t = -0.402±	0.69
Male sex, n (%)	27 (79.4)	33 (89.2)	OR = 0.468	0.332
Best corrected visual acuity in logMAR (mean ± SD)	0.60 ± 0.15	0.58 ± 0.19	t = 0.502±	≈0.62
Baseline SRF height, µm (mean ± SD)	303 ± 180	309 ± 196	t = -0.134±	≈0.89
Baseline SFCT (affected eye), µm (mean ± SD)	452.0 ± 70.6	463.0 ± 71.1	t = -0.654±	≈0.52
Baseline SFCT (fellow eye), µm	413.0 ± 59.1	418.0 ± 58.4	t = -0.358±	≈0.72

TABLE 1: Baseline demographic and ocular characteristics of the study participants

SRF, subretinal fluid; SFCT, subfoveal choroidal thickness; ± independent-samples Welch t-test; * Fisher's exact test

The baseline BCVA was 0.60 ± 0.15 logMAR in the treatment group and 0.58 ± 0.19 logMAR in the

observation group, with no significant difference between the groups (p = 0.62, independent-samples t-test). The mean duration of symptoms before presentation was 1.23 ± 1.40 months in the treatment group and 1.18 ± 1.38 months in the observation group, with no significant difference between the groups (p = 0.88, independent-samples t-test). The mean baseline SRF height was 303 ± 180 µm and 309 ± 196 µm, respectively (p = 0.89). The mean baseline SFCT in the affected eye measured 452 ± 70.6 µm in the treatment group and 463 ± 71.1 µm in the observation group (p = 0.52), while the fellow eye demonstrated mean SFCT values of 413 ± 59.1 µm and 418 ± 58.4 µm, respectively (p = 0.72). No statistically significant differences were observed for any baseline demographic, clinical, or imaging parameter.

Visual recovery was significantly faster in the treatment group. At one month, BCVA of 6/6 was achieved in 26 of 34 eyes (76.5%) in the treatment group compared with 15 of 37 eyes (40.5%) in the observation group (Pearson's Chi-square test, p = 0.002). However, by three months, BCVA of 6/6 was achieved in 31 of 34 eyes (91.2%) in the treatment group and 32 of 37 eyes (86.5%) in the observation group, with no significant difference between groups (p = 0.712) (Table *2*).

Outcome	Time point	Treatment	Observation	Test statistic	p-value
BCVA 6/6, n (%)	1 month	26/34 (76.5%)	15/37 (40.5%)	9.37±	0.002
	3 months	31/34 (91.2%)	32/37 (86.5%)		0.712^
Complete SRF resolution, n (%)	Eyes with complete SRF resolution at month 1, n (%)	11/34 (32.4%)	4/37 (10.8%)	4.93±	0.026
	Eyes with complete SRF resolution at month 3, n (%)	21/34 (61.8%)	16/37 (43.2%)	2.44±	0.119
Reduction in SRF height, µm	Change from baseline to month 1 (µm)	183.4 ± 50.6	30.4 ± 21.9	t = 16.29*	<0.001
	Additional change from month 1 to month 3 (µm)	110.6 ± 61.4	91.8 ± 63.4	t = 1.27*	0.209
Affected-eye SFCT, µm	1 month	382.0 ± 69.3	414.0 ± 74.3	t = -1.88*	0.065
	3 months	363.0 ± 63.9	393.6 ± 81.6	t = -1.77*	0.082
Fellow-eye SFCT, µm	1 month	359.6 ± 65.2	406.7 ± 69.6	t = -2.94*	0.004
	3 months	339.2 ± 70.3	383.1 ± 79.9	t = -2.46*	0.015

TABLE 2: Comparison of visual and anatomical outcomes between the treatment and observation groups

BCVA, best-corrected visual acuity; SRF, subretinal fluid; SFCT, subfoveal choroidal thickness; ± Pearson's Chi-square test; ^ Fischer's exact test; * Independent-samples t-test

SRF height reduction from baseline to month 1 was calculated as baseline SRF height minus one-month SRF height. The additional reduction between months 1 and 3 was calculated as one-month SRF height minus three-month SRF height

Complete SRF resolution occurred more frequently in the treatment group at one month, being observed in 11 of 34 eyes (32.4%) compared with four of 37 eyes (10.8%) in the observation group (p = 0.026). At three months, complete SRF resolution was observed in 21 of 34 eyes (61.8%) in the treatment group and 16 of 37 eyes (43.2%) in the observation group. Although the treatment group continued to demonstrate a higher resolution rate, the difference was not statistically significant (p = 0.119). The mean reduction in SRF height was significantly greater in the treatment group at one month (183.4 ± 50.6 µm vs. 30.4 ± 21.9 µm; p < 0.001). At three months, further reduction remained greater in the treatment group (110.6 ± 61.4 µm vs. 91.8 ± 63.4 µm), although the difference was no longer statistically significant (p = 0.209). The mean SFCT of the affected eye was lower in the treatment group than in the observation group at both follow-up visits. At one month, mean SFCT measured 382.0 ± 69.3 µm in the treatment group and 414.0 ± 74.3 µm in the observation group (p = 0.065). At three months, corresponding values were 363.0 ± 63.9 µm and 393.6 ± 81.6 µm, respectively (p = 0.082). Although numerically lower in the treatment group, these differences did not reach statistical significance. In contrast, SFCT in the fellow eye was significantly lower in the treatment group at both follow-up visits. At one month, the mean SFCT was 359.6 ± 65.2 µm compared with 406.7 ± 69.6 µm in the observation group (p = 0.004). At three months, the mean SFCT measured 339.2 ± 70.3 µm and 383.1 ± 79.9 µm, respectively (p = 0.015).

No serious ocular or systemic adverse events attributable to eplerenone were observed during the study period. Specifically, no cases of hyperkalemia, hypotension, or other clinically significant treatment-related adverse events were reported at any follow-up visit.

Discussion

In this retrospective comparative cohort study of 71 eyes with acute CSCR, oral eplerenone 50 mg daily demonstrated better early visual outcomes, comparable to the natural course at three months. The proportion of eplerenone-treated eyes with BCVA of 6/6 was 76.5% (26/34) at one month compared with 40.5% (15/37) of observed eyes (OR: 4.77; 95% CI: 1.70-13.34; p = 0.002), but the proportions had converged at three months, 91.2% versus 86.5% (OR: 1.61; 95% CI: 0.36-7.34; p = 0.712). Anatomically, 32.4% of treated eyes had complete resolution of SRF at one month versus 10.8% of observed eyes (OR: 3.95; 95% CI: 1.12-13.94; p = 0.026). The difference between the groups was less at three months (61.8% vs 43.2%; p = 0.119). The treatment was well-tolerated with no episode of hyperkalemia or other systemic side effects. These data raise the possibility of a quantifiable and time-limited pharmacological effect of mineralocorticoid receptor antagonism in the acute phase of CSCR, while emphasizing the self-resolving nature of the disease over a normal follow-up period.

The one-month BCVA difference in the treatment arm is similar to the early functional benefit noted in two previously published comparative studies on acute CSCR. Consistent with an initial divergence followed by convergence at three months, the prospective randomized study of Venkatesh et al. showed improvement of BCVA to 6/6 at sequential monthly visits in 92%, 100%, and 100% of eplerenone-treated eyes compared to 74%, 86%, and 100% of observed eyes [14]. Similarly, Sharma et al. reported earlier BCVA improvement in the eplerenone arm, with a delayed but equivalent gain in observed eyes by three months [7]. Zucchiatti et al. in a retrospective study showed a statistically significant difference in BCVA in favor of eplerenone at all time points, which may be explained by differences in baseline severity, duration of follow-up, or the longer-term action of the drug in their cohort [8]. These observations, along with our results, suggest that the primary benefit of eplerenone in acute CSCR may be a decrease in time to achieve baseline vision, rather than an alteration in the steady-state ceiling to which both groups eventually converge. This may be clinically relevant for young, working-age patients, where time to recovery has real occupational and psychosocial implications.

The three-month convergence seen in our data is similar to the natural history reported by Daruich et al., who observed spontaneous remission in the majority of the acute cases after 2-3 months [12]. Similarly, the retrospective long-term follow-up by Gilbert et al. emphasized the usually favorable outcome of the acute disease [15]. In other words, the eye in acute CSCR heals, and the question is whether pharmacotherapy significantly reduces the convalescent period; our study provides preliminary observational evidence consistent with the possibility that eplerenone use is associated with earlier visual improvement in acute CSCR.

The functional signal was preceded by the anatomical signal. At one month, the mean reduction in the height of SRF was 183.4 ± 50.6 µm in the treatment group compared to 30.4 ± 21.9 µm in the observation group (between-group mean difference: 153.0 µm; 95% CI: 134.6-171.4; p < 0.001). Absolute resolution rates and magnitude of fluid reabsorption in our cohort were in line with a mineralocorticoid-receptor-driven choroidal decongestion, initially proposed by Bousquet et al. and later recast by Daruich et al. as a failure of choroidal vasomotor autoregulation in CSCR, whereby mineralocorticoid activation exacerbates vasodilation, vascular leakage, and stromal edema in the choroid [6,12]. The early one-month anatomic effect we observed is qualitatively similar to the 67% complete resolution rate at three months reported by Bousquet et al. in chronic CSCR patients treated with eplerenone [6]. However, the present cohort is not directly comparable in time-course to chronic CSCR data, as it is restricted to acute disease.

The three most relevant comparative studies to our design have reported SRF-resolution rates at three months of 80% vs 25% [8], 62% vs 31% [14], and 61.5% vs 38.5% [7]. Our numbers of 61.8% vs 43.2% are more conservative, considering that the observation arm was better than in previous retrospective work and the eplerenone arm was similar to prospective comparative research. The reduction in intergroup separation at three months is consistent with the wave of spontaneous resolution catching up to the treatment response at short follow-up intervals described by Venkatesh et al. and is consistent with the same pattern seen by Sarkar et al., where both groups improved, but the treatment arm attained a faster cure rate [9].

The mean SFCT (mean ± SD, µm) at baseline was 452.0 ± 70.6 in the affected eye of the treatment group and 463.0 ± 71.1 in the observation group. This value was much higher than that of 307 ± 79 µm reported by Akhtar et al. in 230 healthy Indian subjects [16]. In our retrospective study, both groups exhibited downward trends in SFCT of the affected eye during follow-up: 382.0 ± 69.3 µm (treatment) versus 414.0 ± 74.3 µm (observation) at one month (p = 0.065) and 363.0 ± 63.9 µm (treatment) versus 393.6 ± 81.6 µm (observation) at three months (p = 0.082). Akhlaghi et al., in their double-blind randomized controlled trial (RCT), showed significant improvement in both CT and CMT within each group but without any significant difference between treated and observed patients [17]. Zucchiatti et al. reported that SFCT significantly decreased in the eplerenone group during follow-up, while no significant change was found in the control group [8]. Our data lend partial support to both accounts: the reduction in the treated cohort concurs with that reported by

Zucchiatti et al., while the absence of a significant difference between groups is compatible with the study of Akhlaghi et al. The divergence from Zucchiatti (no significant change in our observation arm) may be due to differences in cohort phenotype, follow-up period, or measurement procedure.

We think fellow-eye SFCT data provide a more persuasive and complementary signal. The mean fellow-eye SFCT at one month was 359.6 ± 65.2 µm in the treatment group and 406.7 ± 69.6 µm in the observation group (mean difference: −47.1 µm; 95% CI: -78.5 to -15.7; p = 0.004). The respective values at three months were 339.2 ± 70.3 µm vs. 383.1 ± 79.9 µm (mean difference: -43.9 µm; 95% CI: -78.8 to -9.0; p = 0.015).

The statistically significant reduction in SFCT in the fellow eye, which was unaffected by local retinal pathology, raises the possibility that systemic mineralocorticoid receptor blockade may influence choroidal structure through a vascular or other systemic mechanism. This finding is less readily explained by anatomical recovery associated with resolution of SRF in the affected eye. However, given the retrospective, nonrandomized design, a systemic pharmacological mechanism cannot be established definitively, and this interpretation should be regarded as a hypothesis requiring prospective validation. This is in accordance with the choroidal mechanistic framework of Leclercq et al. and Hansraj et al., suggesting that choroidal innervation, mineralocorticoid signaling, and RPE pump function collectively regulate SFCT dynamics and that mineralocorticoid antagonism is not limited to the clinically affected eye [18,19]. This finding is also in accordance with studies that demonstrate mineralocorticoid blockade can affect choroidal structure in the long-term follow-up even with some progression to inner choroidal fibrosis [20].

The persistence of this fellow-eye effect at three months (mean intergroup difference nearly identical to that at one month, ~ 47 µm vs. ~ 44 µm) suggests that the choroidal thinning induced by mineralocorticoid antagonism reaches a measurable plateau over a short time window in young acute patients. It is unknown whether this is true vascular remodeling, partial regression of the baseline bilateral pachychoroid, or redistribution of choroidal fluid. Ideally, this would be quantified by OCTA-derived choriocapillaris flow and choroidal vascularity index parameters, which were not measured in the current study.

Several methodological considerations strengthen these findings. Baseline factors, including age, sex, duration of symptoms, SRF height, and SFCT of the affected and fellow eyes, were well-matched between the groups (all p > 0.05), making assessed confounding less likely to occur. The use of contralateral-eye SFCT as an internal control for systemic mineralocorticoid receptor blockade supports the inference of a pharmacologic effect on the choroid, an approach rarely reported in CSCR studies from Southeast Asia. Standardized imaging was performed on one OCT platform (SPECTRALIS HRA+OCT; HEYEX 6.12), and masked consensus grading was used to reduce measurement variability. BCVA was chosen as the measure of visual outcome longitudinally so that a clinically relevant 6/6 threshold could be used, enabling comparison to previous studies of acute CSCR. The absence of hyperkalemia or symptomatic hypotension further supports the short-term safety of low-dose eplerenone.

It is important to consider that there are many limitations to interpreting these findings. First, the retrospective, nonrandomized design is prone to residual confounding, and unmeasured factors such as corticosteroid exposure, psychological stress, and RPE leak characteristics may have influenced outcomes. Second, to rule out a placebo effect on subjective visual outcomes, a true placebo control is necessary. Third, SFCT measurements were obtained using masked consensus grading, but manual assessment is still subject to observer variability. Fourth, a small sample size may compromise statistical power, especially for affected-eye SFCT differences, resulting in a higher chance of type II error. Fifth, the three-month follow-up does not permit a chronic anatomical and functional evaluation. Sixth, OCT angiography measures such as choriocapillaris flow deficits, retinal capillary plexus perfusion, and choroidal vascularity index were not assessed and may have provided complementary mechanistic insights. Finally, generalizability may be limited by a single-center design.

Conclusions

In this retrospective comparative cohort, oral eplerenone (50 mg/day) was associated with faster early visual and anatomical recovery in acute CSCR during the first month without affecting the favorable three-month outcome. The bilateral reduction in SFCT may be associated with mineralocorticoid receptor blockade and raises the possibility of a systemic pharmacological effect on the choroid, beyond changes attributable to local disease resolution alone. However, this interpretation remains hypothetical given the retrospective, nonrandomized study design. Taken together with previous evidence, our findings indicate that eplerenone use may be associated with faster early recovery in acute CSCR before irreversible pachychoroid-related changes develop. However, these findings require confirmation in adequately powered, multicenter, randomized, placebo-controlled trials with longer follow-up to establish the efficacy and long-term safety of eplerenone in acute CSCR.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the

work.

Concept and design: Bivas Bala, Mayukh Goswami

Acquisition, analysis, or interpretation of data: Bivas Bala, Mayukh Goswami

Drafting of the manuscript: Bivas Bala

Critical review of the manuscript for important intellectual content: Bivas Bala, Mayukh Goswami

Supervision: Mayukh Goswami

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Ethics Committee, Calcutta National Medical College issued approval EC-CNMC/2024/500. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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