

## Research Article

# Analysis of role of oral rifampicin in chronic central serous chorioretinopathy

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## ABSTRACT

**Introduction:** Central serous chorioretinopathy (CSCR) is characterized by macular serous retinal and/or retinal pigment epithelium (RPE) detachment. It is most common in men aged 30 to 50 years. **Aims and objectives:** The main objective of the study is to analyze the role of oral rifampicin in chronic central serous chorioretinopathy. **Material and methods:** This observational sectional study was conducted in Department of Ophthalmology, Independent Medical College, Faisalabad during February 2018 to November 2018. The data were collected from seven patients with age range 30 to 50 years. The diagnosis of chronic CSCR was based on the presence of SRF >3 months duration with/without diffuse retinal pigment epithelial (DRPE) changes. Patients with evidence of serous elevations secondary to other ocular conditions such as optic disc pit, multifocal choroiditis, posterior scleritis, choroidal mass or associated systemic illnesses were excluded from the study. **Results:** The data were collected from seven patients with mean age range 35.22±5.22 years. Mean best corrected visual acuity (BCVA) was 0.56±0.116 with a range of 0.00 to 0.77 before starting the treatment while after treatment at 04 weeks visual acuity was of 0.147±0.148. The mean CMT at the time of presentation was 494.39±96.2 um while it was 306.90 after 04 weeks of starting half dose (300 mg daily) Rifampicin. The mean induced reduction in CMT was 187.48±122 um while that in BCVA was 0.41±0.16. **Conclusion:** It is concluded that oral rifampicin to be an effective and affordable therapy for eyes with chronic CSCR. In eyes with extensive RPE damage, rifampicin is not very effective in causing resorption of SRF and improvement in vision.

**Key words:** CSCR, Rifampicin, Chronic, Therapy

## INTRODUCTION

Central serous chorioretinopathy (CSCR) is characterized by macular serous retinal and/or retinal pigment epithelium (RPE) detachment. It is most common in men aged 30 to 50 years. Most clinical studies have classified CSCR into acute and chronic forms based on the duration of subretinal fluid (SRF) accumulation<sup>1</sup>. Also, presence of retinal pigment epithelial changes on

clinical examination also suggests chronicity. Multiple treatment modalities have been described for chronic CSCR, including focal laser, photodynamic therapy (PDT), rifampicin, and even anti-VEGF therapy<sup>2</sup>. In some patients, focal laser is contraindicated due to proximity of leaking spots to the fovea. Although PDT has been found to be effective, it is unavailable and not affordable

to patients in many developing countries. Rifampicin has been described in anecdotal reports as an alternative treatment option due to its effect on serum cortisol and low cost<sup>3</sup>.

Patients of CSCR usually present with mild deterioration of central vision, metamorphosis, scotoma and/or induced hypermetropia secondary to central macular elevation. The exact mechanism involved in the etiology and evolution of CSCR remains unclear, however various risk factors have been associated with its development<sup>4</sup>. Studies have shown the association of psychological stress, type A personality, endogenous/exogenous steroids, respiratory tract infection with *elicobacter pylori*, pregnancy and untreated hypertension with CSCR<sup>5</sup>. Although diagnosis of CSCR is made by clinical examination, various investigation modalities such as Optical coherence tomography (OCT), and fundus fluorescein angiography (FFA) are used to confirm the diagnosis and monitor the disease<sup>6</sup>.

#### Aims and objectives

The main objective of the study is to analyze the role of oral rifampicin in chronic central serous chorioretinopathy.

#### MATERIAL AND METHODS

This observational sectional study was conducted in Department of Ophthalmology, Independent Medical College, Faisalabadduring February 2018 to November 2018. The data were collected from seven patients with age range 30 to 50 years. The diagnosis of chronic CSCR was based on the presence of SRF >3 months duration with/without diffuse retinal pigment epithelial (DRPE) changes. Patients with evidence of serous elevations secondary to other ocular conditions such as optic disc pit, multifocal choroiditis, posterior scleritis, choroidal mass or associated systemic illnesses were excluded from the study. Patients were started with an oral 300 mg daily dose of Rifampicin for 3 months. Patients were reviewed at 4 weeks, 8 weeks, and 4 months for detailed ocular and systemic examination as well

as measurement of central macular thickness by OCT.

#### Statistical analysis

All the data were collected and analyzed using SPSS (version 21.0). Continuous data such as Age, BCVA, CMT were described in terms of mean  $\pm$  SD (standard deviation).

#### RESULTS

The data were collected from seven patients with mean age range 35.22 $\pm$ 5.22 years. Mean best corrected visual acuity (BCVA) was 0.56 $\pm$  0.116 with a range of 0.00 to 0.77 before starting the treatment while after treatment at 04 weeks visual acuity was of 0.147 $\pm$  0.148. The mean CMT at the time of presentation was 494.39 $\pm$ 96.2 um while it was 306.90 after 04 weeks of starting half dose (300 mg daily) Rifampicin. The mean induced reduction in CMT was 187.48 $\pm$ 122 um while that in BCVA was 0.41 $\pm$  0.16.

**Table 01:** Mean, standard deviation and induced change of BCVA and CMT before and after treatment at 04 weeks.

	Mean $\pm$ SD	P - value
Pre-treatment BCVA	0.56 $\pm$ 0.11	P < 0.001
Pre-treatment CMT	494.39 $\pm$ 96.29	P < 0.001
Post-treatment BCVA	0.47 $\pm$ 0.14	P < 0.001
Post-treatment CMT	306.90 $\pm$ 50.71	P < 0.001
Induced Change in BCVA at 04 weeks	0.41 $\pm$ 0.16	P = 0.001
Induced change in CMT at 04 weeks	187.48 $\pm$ 122.01	P = 0.001

#### DISCUSSION

Rifampicin is an inexpensive, antitubercular drug and readily available in the developing world. It is a cytochrome P4503A4 enzyme inducer which increases the metabolism of endogenous

corticosteroids and thereby reduces their levels in the serum, helping in the faster SRF resolution<sup>8</sup>. In a study by Shulman and colleagues, 12 patients (with 14 involved eyes) were treated with oral rifampicin 300 mg twice daily. There was a significant reduction in SRF at the end of 3 months and complete resolution of SRF in six (42.8%) eyes. However, this study did not categorize fluorescein findings (type of leak) and had a short follow-up. The current series has the advantage of having long follow-up duration (mean of 10.1 months) and characterized fluorescein findings that prove to be clinically relevant<sup>9</sup>. Three of the four eyes with complete resolution of SRF had focal leaks on FA. Four of the five eyes in the DRPE group did not achieve complete SRF resorption at month<sup>10</sup>. Despite the small numbers, this suggests the need for a relatively healthy RPE to allow SRF absorption. Mean BCVA at presentation and at month 3 was 6/30 and 6/18, respectively. Vision improved in those eyes achieving resolution of SRF<sup>11</sup>. Three (33.33%) eyes had one-line improvement and one (11.11%) eye had a two-line visual improvement. Eyes with persistent SRF at 3 months showed no improvement in three of the five eyes and the remaining two eyes had a two-line improvement in visual acuity. There have been reports that the efficacy of rifampicin in CSCR is limited to the duration of its use, with recurrences noted when treatment is discontinued.

Chronic CSCR can be a debilitating disease with decrease in visual acuity due to persistent presence of fluid in the sub-retinal space and wide spread RPE atrophy. It is associated with higher recurrence rate and potentially poor visual prognosis<sup>12</sup>.

## CONCLUSION

It is concluded that oral rifampicin to be an effective and affordable therapy for eyes with chronic CSCR. In eyes with extensive RPE damage, rifampicin is not very effective in causing resorption of SRF and improvement in vision.

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